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—— ECONOMICS ——

New Facts and Figures on Japanese Public Finance .... *Hanya Ito* 1

On the Method of the Economic Plan (1958–62) of Japan .... *Yuzo Yamada* 21

Balance of Trade and Economic Growth in Japan........ *Keinosuke Baba* 37

Chronic Underemployment: A Comparison Between Japan and the United States ......*Alan H. Gleason* 64

Increasing Populations and Industrial Structures .... *Tokijiro Minoguchi* 81

On the Cost Factors in the Location Theory of Industry —Principle of Approach and Non-Approach—...*Toshio Aoki* 91

Bibliography on Economics Published in Japan in Western Languages, 1956–1958........ 108

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THE ANNALS OF
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NEW FACTS AND FIGURES ON JAPANESE PUBLIC FINANCE

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This paper is intended to give facts and figures on, as well as a brief explanation of, public finance in Japan as related to economic development. It was originally compiled as a report for the 14th Congress of *The International Institute of Public Finance* held in Brussels, September 15–18, 1958. The full text is reproduced here, with alterations and additions made necessary by the lapse of time.

I. *Historical Outline of Japanese Public Finance and Economy*

(1) The Period from the Middle of the Nineteenth Century to World War I.

The development of a capitalistic economy in Japan was due in large part to financial investment by the state. Although commerce and handicraft industries had already appeared in cities in feudal times, the prevailing industry of the country during the period was agriculture. The feudal system was brought to an end and a capitalistic society was formed by the revolution which took place around the middle of the nineteenth century. At the outset, the economic strength of the population was meager and their voluntary savings alone were not sufficient for the formation of the capital required for economic development. This required the mobilization of the financial assets of the state itself. Almost the entirety of industry centering around military production was introduced from other countries under the auspices and continuing care of the national government. In addition, mining, chinaware, machine manufacturing, spinning, and textiles, first, then such modern enterprises as banking, postal services, telegraph and telephone, and railways were established, either by the state itself or with the financial assistance of the state. With the exception of war industries, postal services, telegraph and telephone, and the railways, most of these capital establishments were later transferred to private ownership. Remarkable as the subsequent growth of private capital was, there was constant, continuing support of industry from state funds.[1]

Victories in the Sino-Japanese War (1894–1895) and the Russo-Japanese War (1904–1905) spurred Japan's development of her national resources. The unprecedented wave of prosperity during World War I brought a sudden increase in Japan's economic strength leading to the firm establishment of the foundation of capitalism, the development of numerous modern industries of all kinds, and the inauguration of large-scale enterprises for the development of resources in Manchuria and other regions of the Asiatic continent.

(2) The Period from the End of World War I to the Manchurian Incident.

The Japanese economy entered a period of reaction after World War I. The period between 1926 and 1931 was the rock bottom of a depression and the country suffered from overproduction, increased unemployment, price declines, and stagnation in exports. An opportunity to break the grip of this situation presented itself when the Manchurian Incident occurred on September 18, 1931, and Japan went off the gold standard on December 13 of the same year. The outbreak of the Manchurian Incident brought about an armaments expansion that led to increased military expenditures, an unbalanced budget, and a policy of intensified issuance of public bonds. The bond policy adopted during the period from 1931 to 1936, however, had the effect of artificially creating purchasing power and a corresponding effective demand for commodities. Coupled with an increase in exports growing out of a fall in the value of the *yen* on the foreign market, it had a beneficial effect on the Japanese economy, suffering at that time from underemployment.

(3) The Period between the China Incident and World War II.

The China Incident, touched off by a clash between Chinese and Japanese troops on July 7, 1937, gradually spread over the whole Chinese mainland and began to take on the status of a full-scale war. To cope with this situation, Japan's finances and economy were gradually re-organized from a peace-time to a war-time structure. This trend was further intensified upon Japan's entry in World War II on December 8, 1941, and continued until her unconditional surrender on August 15, 1945.

The special characteristic of public finance and the national economy of the period was, in short, that all available economic resources were applied to the war effort through expansion of productive capacity and economizing in private consumption. To achieve this end, governmental control was exercised over production, consumption, distribution, prices, foreign trade, and all other phases of the national economy, while at the same time measures were taken in public financing for increase of military expenditures, curtailment of general administrative expenditures, increase of taxes, and flotation of more public loans. These measures, though gradually intensified as the war advanced, did not induce any serious ruptures until towards the end of the war, the reason for this being the extreme degree of control exercised by the government with the military at its core.

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[1] See Motokazu Kimura, "Fiscal Policy and Industrialization in Japan 1868–1895," *The Annals of the Hitotsubashi Academy*, Vol. VI, No. 2 (Tokyo: Hitotsubashi University, 1956) for the relation between public finance and capital accumulation in nineteenth century Japan.

(4) The Period from the End of World War II to the Present.

From the end of August, 1945, until April 28, 1952, when the San Francisco Peace Treaty went into effect, the whole of Japan was occupied by the American military, and Japan's economy and affairs of state were under the control of the Supreme Commander for the Allied Powers.

In World War II, Japan lost 44% of her territory, and air raids and other war damage destroyed 25% of her national capital resources. Productive capapcity dropped, and the production index (1931—33=100) in August, 1945, was down to 27.5, as against 158.4 for 1936, the year preceding the China Incident. Until 1949, social and economic confusion, the decline in productive capacity, the shortage of food and other goods, increased government expenditures, and a general feeling of insecurity regarding the political and economic prospects of the country resulting from the defeat caused and promoted a continuing inflationary trend. During these five years commodity prices soared to nearly 60 times their levels at the end of the war. Various countermeasures were of course taken, including intensification of financial assistance aimed at industrial recovery, freezing of purchasing power through deposit blocking, a special capital levy, and the prohibition of deficit bonds. Thanks to these steps, and to GARIOA, EROA, and other aid from the United States, inflation was temporarily checked.

The Korean War, however, broke out on June 25, 1950, and the stimulus of increased demand for goods and services from the United States forces brought a boom of prosperity to Japan's economy and sent commodity prices up again. The conclusion of a truce on July 27, 1953, then decreased special procuroments by the United States forces, with the result that the international balance of payments began to take a turn for the worse. To cope with this, deflationary measures were adopted in 1954, and efforts were made in public finance to control increasingly expanding outlay. As a result, Bank of Japan notes in circulation, which had been increasing annually for several years, now decreased, rising commodity prices leveled off, the international balance of payments improved, and real national income increased. Toward the middle of 1957, however, there appeared tendencies toward over-investment, over-production, and an excess of imports. Japan's foreign exchange holdings, which had been $1,400 million as of the end of December, 1956, dropped to $873 million at the end of June, 1957. Countermeasures have been taken to encourage exports, curtail imports, raise interest rates, tighten public investments and loans, provent increase in national expenditures, and lower or abolish taxes as a means of encouraging capital accumulation. These policies seem to have achieved a marked success, as indicated by statistics in the following chapters.[2]

II. *Indices of Recent Japanese Public Finance and Economy*

In this chapter there are various tables showing indices of public finance and economy in latter-day Japan. All tables and computations appearing either in this or other chapters are, unless stated otherwise, as follows:

(1) Years indicated are fiscal years. A fiscal year begins April 1 of the year stated and ends March 31 of the year following.

(2) Figures for the years 1958 and 1959 are budgeted (estimated) sums. Figures for all other years are for settled accounts (actual sums).

(3) Recepits and expenditures of the national and local governments are those indicated in the general account.

(4) Figures are based on statistical data compiled and published by such governmental agencies as the Ministry of Finance, the Local Autonomy Agency, and the Economic Planning Board.

(5) The reason the average of the years 1934–36 is used as the basic unit of comparison is to show the peace-time conditions existing immediately prior to the China Incident.

(6) Unit of computation is 1000 million *yen*.

Table 1 *Public Finance and Economic Development*

(Unit: 1000 million *yen*)

Fiscal Year	Population (In Millions)	National Income	Commodty Price Index	National Government Expenditures	National Government Revenue
1926	61	12.5	115	1.6	2.1
1930	64	11.7	86	1.6	1.6
1936	70	15.5	104	2.3	2.3
1944	73	56.9	232	93.0	81.0
1947	79	968.0	4,815	206.0	214.0
1949	82	2,737.3	20,876	699.0	759.0
1958	92	8,412.0	34,500	1,312.1	1,312.1
1959	93	8,928.0	34,300	1,419.2	1,419.2

A. Commodity price indices were obtained from the *Tokyo Wholesale Price Index*, compiled by the Bank of Japan; 1934∼36=100.

B. Figures for revenue and expenditures for 1958 and 1959 are those of the original budget and do not include supplementary budgets later passed by the Diet. The same is true in all other tables, unless otherwise stated.

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[2] For details of public finance in Japan from the Manchurian Incident to date, see Hanya Ito, "Japans öffentliche Finanzen 1931–1952", *Finanzarchiv*, 13. Band, 4. Heft (Tübingen: J.C.B. Mohr, 1952).—Also contained in Hanya Ito, *Essays in Public Finance* (Economic Series No. 3, The Science Council of Japan), Tokyo, 1954.

Table 2 *Growth of National Income*

(Unit: 1000 million *yen*)

Fiscal Year	National Income	Real Income	Real Income Per Capita (Unit: Yen)	Index of Per Capita Real Income
Average of 1934, '35, '36	14.4	14.4	210	100.0
1942	42.1	16.1	223	106.2
1943	48.4	16.1	219	104.3
1944	56.9	15.4	208	99.1
1946	360.9	8.3	110	52.4
1947	968.0	8.8	113	53.8
1948	1,961.6	10.3	129	61.4
1949	2,737.3	11.9	145	69.0
1950	3,381.5	14.0	168	80.1
1951	4,347.5	15.2	180	85.7
1952	4,959.0	16.6	194	92.3
1953	5,647.6	17.9	206	98.2
1954	5,984.4	18.3	208	98.9
1955	6,584.0	20.0	225	107.0
1956	7,685.0	22.6	250	119.2
1957	8,340.9	24.1	265	126.0
1958	8,412.0	24.8	269	128.0
1959	8,928.0	26.1	281	134.0

In 1946, the year immediately following the end of World War II, the index of per capita income dropped to 52.4% of the peace-time level. It has gradually risen to the present 134% registering an annual increase of somewhere between 5% and 10%.

Table 3 *National Income Accounts*

(Unit: 1000 million *yen*)

Fiscal Year	Average of 1934, '35, '36	1956	1958	1959
Distributed National Income	14.4	7,685	8,412	8,928
Indirect Taxes	(+) 1.4	(+) 865	(+)1,017	(+)1,083
Subsidies	(−) 0	(−) 7		
Capital Depreciation Allowance	(+) 1.2	(+) 763	(+) 895	(+) 967
Errors and Omissions	(−) 0.3	(−) 18	(−) 18	(−) 22
Gross National Product	16.7	9,288	10,141	10,762
Individual Consumption Expenditures	11.0	5,416	6,170	6,510
Gross Domestic Private Capital Formation	2.6	2,256	1,811	2,000
Government Purchases of goods and Services	3.1	1,710	1,989	2,162
Current Overseas Surplus	0	(−) 94	171	90
Gross National Expenditure	16.7	9,288	10,141	10,762
Per Capita Real Consumption Expenditures (Unit: *yen*)	¥ 160	¥ 183	¥ 197	¥ 205
Index of Per Capita Real Consumption Expenditures	100	114	123	128

Table 4 *Distributed National Income*

(Unit: 1000 million *yen*)

Fiscal Year	Average of 1934, '35, '36	1956	1958	1959
Earned Income from Personal Services	5.6 (39%)	3,851 (50%)	4,373 (52%)	4,654 (52%)
Income to Proprietors of Privately Owned Enterprises	4.5 (31%)	2,684 (35%)	2,795 (33%)	2,874 (32%)
Personal Income from Rentals	1.3 (9%)	110 (1%)	413 (5%)	464 (5%)
Personal Income from Interest	1.3 (9%)	218 (3%)		
Corporate Income	1.3 (9%)	872 (11%)	858 (10%)	961 (11%)
Surplus from Government and Public Enterprises, etc.	0.4 (3%)	63 (1%)	110 (1%)	128 (1%)
Net Income from Overseas	0 (0%)	(−) 33 (0%)	(−) 48 (1%)	(−) 54 (1%)
Interest on Government and Consumers Liabilities	— —	(−) 80 (−1%)	(−) 94 (1%)	(−) 99 (1%)
TOTAL Distributed National Income	14.4 (100%)	7,685 (100%)	8,412 (100%)	8,928 (100%)

Table 5 *National Income by Industries*

(Unit: 1000 million *yen*)

Fiscal Year	1934, '35, '36	1957
Primary Industries	2.9 (20%)	1,537 (18%)
Agriculture	2.4 (17%)	1,138 (14%)
Forestry	0.2 (2%)	196 (2%)
Fisheries	0.2 (2%)	203 (2%)
Secondary Industries	4.4 (31%)	2,804 (34%)
Mining	0.3 (2%)	192 (2%)
Construction	0.5 (3%)	421 (5%)
Manufacturing	3.6 (25%)	2,191 (27%)
Tertiary Industries	7.1 (49%)	3,948 (48%)
Wholesale and Retail Trade	2.0 (14%)	1,305 (16%)
Finance, Insurance and Real Estate	1.5 (10%)	438 (5%)
Transportation, Communications, and Other Public Utilities	1.5 (10%)	847 (10%)
Service Industries and Others	2.1 (15%)	1,358 (17%)
Net Income from Overseas	0 (0%)	(—) 38 (1%)
TOTAL National Income by Industries	14.4 (100%)	8,252 (100%)

Table 6 *Employment by Industries*

(Unit: 1000 persons)

Fiscal Year	1940	1950	1955
Total Population	70,818	83,200	89,275
Total Employed Population	32,231 (100%)	35,626 (100%)	39,237 (100%)
Agriculture and Forestry	13,655 (42%)	16,526 (46%)	15,437 (39%)
Fishing and Marine Products	538 (2%)	682 (2%)	720 (2%)
Mining	596 (2%)	591 (2%)	533 (1%)
Construction	978 (3%)	1,531 (4%)	1,813 (5%)
Manufacturing	6,845 (21%)	5,690 (16%)	6,975 (18%)
Commerce (Including finance, insurance, etc.)	4,381 (14%)	4,325 (12%)	6,024 (15%)
Transportation and Communications	1,516 (5%)	1,811 (5%)	2,027 (5%)
Service Industries	2,887 (9%)	3,056 (9%)	4,380 (11%)
Government	618 (2%)	1,376 (4%)	1,326 (3%)
Unidentified	217 (0%)	37 (0%)	3 (0%)

Figures are based on the national census taken October 1 of the years listed.

Table 7 *Major Economic Indices for Recent Years*

(Unit: 1000 million *yen*)

Fiscal Year	1958	1959
Total Population (Unit: 1 million)	92.0	92.9
Labour Force (Unit: 1 million)	44.2	44.8
Total Number Employed (Unit: 1 million)	43.6	44.2
Gross National Product	10,141	10,762
Distributed National Income	8,412	8,928
Private Capital Fromation	1,811	2,000
Personal Consumption Expenditures	6,170	6,510
Production Index of Manufacturing and Mining Industries (1955=100)	146.3	155.2
Foreign Exchange Account		
Receipts	1,242	1,314
Payments	1,076	1,256
Balance	(+) 166	(+) 58

Table 8 *National Wealth*

(Unit: 1000 million *yen*)

As of December 31, 1930	110
As of December 31, 1935	124
As of December 31, 1955	20,327

The figure for 1955 is for capital wealth only. Figures for 1930 and 1935 include mines and other underground resources, natural forests, and military properties as well. The value of capital resources for 1935, as opposed to the total national wealth for the year, comes to 14,689,000 million *yen* in terms of 1955 currency values.

III. *Types of Public Accounts in Japan*

(1) The Budget Structure of the Central Government

Japan's public finances consist of the finances of the central government and the finances of local bodies. Figures for local finance appear principally in Chapter XIV.

As in other countries, national finances and the budget in Japan consist of a general account and special accounts. There are also accounts of quasi-governmental organizations.[3]

The general account manages administrative revenue and expenditures of a general character. Its contents are dealt with in the following chapters, beginning with Chapter IV. Special accounts and quasi-governmental organization accounts are the subject of this chapter.

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[3] See Hanya Ito, "Staatshaushalt und Finanzsystem Japans", *Handbuch der Finanzwissenschaft*, 3. Band, (2d ed., Tübingen: J.C.B. Mohr, 1958), and its bibliography for an outline of the national and local finance systems in Japan.

(2) Special Accounts

The number of special accounts and their contents differ from year to year. There are forty-odd special accounts at present, classified into the following five groups: 1) special accounts of state enterprises and government services (such as for the operation of postal savings, state forests, and dam construction services); 2) special accounts for control and supervision (such as for the control of foregin exchange funds and staple foodstuffs); 3) special accounts for the operation of government insurance systems (such as Unemployment Insurance, Welfare Pension Insurance, Seamen's Insurance, Postal Life Insurance, etc.); 4) special accounts for investments and loans (such as public investment in key industries and the handling of public Postal Savings, Postal Life Insurance, and other funds loaned to private groups and local bodies); and 5) special accounts for the balancing and adjustment of special funds (such as for war reparations and for local allocation and distribution tax funds).

(3) Accounts of Quasi-Governmental Organizations

These accounts are for such public enterprises as the Japan Monopoly Corporation, the Japan Telegraph and Telephone Corporation, and the Japan National Railways and for such public financial institutions as the People's Finance Corporation, the Housing Finance Corporation, the Medium and Small Enterprise Finance Corporation, and the Japan Export and Import Bank. Funds for these public enterprises and corporations are provided entirely by the government, and they therefore come close to taking on the complexion of pure government offices in their public nature. The budget for these accounts total almost the same as the general account of the central government, a fact that has an important bearing upon the national economy. The revenue and expenditures of these organizations were budgets not formerly referred to the Diet for deliberation, but since 1949, have been subject to the same Diet review as the central government's budget. This came about after the Reconstruction Finance Bank, established immediately after the end of the war for the purpose of providing funds to key industries for reconstruction, issued large amounts of bonds, with the Bank of Japan as underwriter, and thus became one of the causal factors in the postwar inflation. Evidence of abuse in the handling of loan funds also came to light.

(4) Composite of Budget Recepits and Expenditures of Central National Finances

Table 9 lists the 1958 and 1959 budgets for the general account, special accounts, and quasi-governmental organization accounts.

Table 9 *Budgeted Receipts and Expenditures of National Finances*

(Unit: 1000 million *yen*)

	1958		1959	
	Expenditures	Receipts	Expenditures	Receipts
General Account	1,312	1,312	1,419	1,419
Total of Special Accounts	2,995	3,137	3,223	3,399
Total (A)	4,307	4,449	4,642	4,818
Duplications (B)	1,577	1,577	1,694	1,695
Net Total [(A)—(B)]	2,730	2,872	2,948	3,123
Total Quasi-Governmental Organization Accounts	1,107	1,237	1,174	1,305

Table 10 shows the net total obtained by subtracting inter-organizational duplications from the receipts and expenditures in the national and local budgets for 1958.

Table 10 *Net Total Balances of National and Local Finances*

(Unit: 1000 million *yen*)

	1958	
	Expenditures	Receipts
(1) General Account	1,312	1,312
(2) Total, Special Accounts	2,995	3,137
(3) Total, Quasi-Governmental Organization Accounts	1,107	1,237
(4) Total, National Finances Accounts [(1)+(2)+(3)]	5,414	5,686
(5) Duplications	1,967	2,084
(6) Net Total, National Finance Account [(4)—(5)]	3,447	3,602
(7) Total, Local Finances Accounts	1,237	1,237
(8) Total, National and Local Finances Accounts [(6)+(7)]	4,684	4,839
(9) Duplication in National and Local Finances Accounts	628	628
(10) Net Total, National and Local Finances Accounts [(8)—(9)]	4,056	4,211

IV. *Public Finance and National Income*

Table 11, which indicates the relationship between national income and expenditures from the general account of the central government, shows the position public finance occupies in the national economy.

Table 11 *State Expenditures and National Income*

(Unit: 1000 million *yen*)

Fiscal Year	Central Government Expenditures (A)	National Income (B)	$\frac{A}{B}$	Local Governments Expenditures
1926	1.6	12.5	12%	1.5
1930	1.6	11.7	14%	1.7
1936	2.3	15.5	15%	3.0
1944	93.0	56.9	163%	3.9
1947	206.0	968.0	21%	93.0
1949	699.0	2,737.0	26%	391.0
1958	1,312.1	8,412.0	16%	1,237.0
1959	1,419.2	8,928.0	16%	1,334.0

Figures for 1944 denote net expenditures and were obtained by subtracting duplications from the total of the general account and the war costs special account. The same applies to all other tables. The fact that expenditures that year were 163% greater than national income indicates that war costs were met not only with national income for the year but also by consuming national assets accumulated in the past and by calling on foreign resources. The extent to which Japan utilized foreign economic strength during the year reached 34,000 million *yen*. See Table 15.

Although state expenditures have recently increased, in form as well as in substance (considering commodity price indices), their ratio to national income is still conspicuously low as compared to the period during World War II or the period immediately following the war. The proportion at present approximates that of the pre-war period.

V. *Categories of Expenditures*

Taking the end of World War II as a dividing point, the general account expenditures of the central government during the pre-and post-war years have been classified by economic functions as follows:

Table 12 *Categories of Expenditures before and during World War II*

(Unit: 1000 million *yen*)

Fiscal Year	1926	1930	1936	1944
Imperial Household	0.004 (0.3%)	0.004 (0.3%)	0.004 (0.2%)	0.004 (0%)
Annuities and Pensions	0.13 (8%)	0.15 (10%)	0.18 (8%)	0.47 (0%)
National Debt, Principal and Interest	0.23 (15%)	0.27 (18%)	0.36 (16%)	3.11 (3%)
General Civil Administration	0.77 (49%)	0.69 (44%)	0.65 (29%)	16.29 (17%)
Military Affairs	0.43 (28%)	0.44 (28%)	1.08 (47%)	73.49 (79%)
TOTAL	1.60 (100%)	1.60 (100%)	22.82 (100%)	93.36 (100%)

The expansion of military expenditures and the reduction of general civil administration expenditures are the characteristics of expenditures during this period.

Table 13 *Categories of Expenditures after World War II*

(Unit: 1000 million *yen*)

Fiscal Year	1947	1949	1958	1959
(1) Defense and Peace Treaty	67.3 (33%)	103 (15%)	176 (14%)	189 (13%)
U.S. Occupation Forces	67.3 (33%)	103 (15%)	—	—
Expenses for Defense Forces and Share of Expenses for U. S. Security Forces	—	—	150 (12%)	157 (11%)
Reparations and other Foreign Debts	—	—	26 (2%)	32 (2%)

(2) Transfers	32.6 (16%)	86 (12%)	397 (28%)	421 (30%)
National Debt, Principal and Interest	7.4 (4%)	13 (2%)	67 (3%)	55 (4%)
Annuities and Pensions	0.2 (0%)	3 (0%)	105 (8%)	116 (8%)
Distribution Tax to Local Bodies	25.0 (12%)	70 (10%)	225 (17%)	250 (18%)
(3) Subsidies and Aid	30.5 (15%)	196 (28%)	159 (13%)	182 (13%)
Price Adjustment	22.5 (11%)	170 (24%)	—	—
Social Security	8.0 (4%)	26 (4%)	159 (13%)	182 (13%)
(4) Economic Assistance	46.7 (22%)	213 (31%)	286 (22%)	310 (22%)
Promotion of Agriculture, Manufacturing, and Trade	27.9 (13%)	104 (15%)	99 (7%)	94 (7%)
Public Works	14.8 (7%)	62 (9%)	187 (15%)	216 (15%)
Government Investments	4.0 (2%)	47 (7%)	—	—
(5) General Administration	28.5 (14%)	101 (14%)	294 (23%)	317 (22%)
Operation of Governmental Organizations	17.9 (9%)	48 (7%)	68 (5%)	69 (4%)
Justice and Police	3.6 (2%)	17 (2%)	56 (4%)	61 (4%)
Education and Science	7.0 (3%)	36 (5%)	162 (13%)	179 (13%)
Reserve Fund	—	—	8 (1%)	8 (1%)
TOTAL	206 (100%)	699 (100%)	1,312 (100%)	1,419 (100%)
Negative Expenditures [(1), (2) & (3)]	131 (64%)	385 (55%)	732 (55%)	792 (56%)
Positive Expenditures [(4) & (5)]	75 (36%)	314 (45%)	580 (45%)	627 (44%)
TOTAL	206 (100%)	699 (100%)	1,312 (100%)	1,419 (100%)

When classified into negative and positive expenditures from the viewpoint of their effect on the national economy, such outlays have shown certain tendencies in past years. During the years immediately after the end of the war, expenditures for the U. S. Occupation Forces and for price adjustment were large, with the proportion of negative expenditures reaching 64% of the total in 1947. After that, these negative expenditures gradually decreased until their ratio became as low as 41% in 1951. National defense forces expenses, annuities and pensions, and distrubtion taxes to local governments have since increased, however, with the result that negative expenditures account for more than half of the total expenditures each year, at present.

In the future this proportion is expected to become larger, because of increased expenditures for such purposes as the national self-defense forces; reparations to the Philippines, Burma, Indonesia, and Viet Nam; repayment of economic aid received from the United States after the war under GARIOA and EROA; funds for foreign loans; annuities and pensions for former military personnel; aid to surviving families of the war dead; and social security. Latent here are many problems, even from a purely economic standpoint.

The next table shows a draft of the capital and current expenditures budget of the central government for 1958.

Table 14 *Capital Expenditures and Current Expenditures in the 1958 Budget*

(Unit: 1000 million *yen*)

	Capital Expenditures	Current Expenditures	Total
Defense Expenses	14 (9%)	136 (91%)	150 (100%)
Reparations and Other Foreign Debts	—	26 (100%)	26 (100%)
National Debt, Principal and Interest	44 (65%)	23 (35%)	67 (100%)
Annuities and Pensions	—	105 (100%)	105 (100%)
Distribution Tax to Local Bodies	—	225 (100%)	225 (100%)
Social Security	39 (25%)	120 (75%)	159 (100%)
Expenses for the promotion of Agriculture, manufacturing and Trade	51 (52%)	48 (48%)	99 (100%)
Public Works	175 (93%)	12 (7%)	187 (100%)
Administrative Expenses of Governmental Organizations	3 (4%)	65 (96%)	68 (100%)
Justice and Police	4 (7%)	52 (93%)	56 (100%)
Education and Science	23 (14%)	139 (86%)	162 (100%)
Reserve Fund	—	8 (100%)	8 (100%)
TOTAL	353 (27%)	959 (73%)	1,312 (100%)

VI. *Public Finance Equalization Fund*

A feature of the 1958 budget is that 44,000 million *yen* has been reserved as a public finance equalization fund from the 163,000 million *yen* of net surplus national treasury funds remaining after settling the 1956 accounts. Of this, 22,000 million *yen* has been held over as a "Fund for Strengthening Economic Foundations", to be utilized in the future for highways, ports and harbours, and general economic development. The remaining 22,000 million *yen* has been earmarked for various agencies for the development of medium and small enterprises, agriculture, forestry, fisheries, foreign trade, etcetera.

VII. *Investments and Loans by the State*

In analyzing public finances and the economy of present-day Japan, notice must be taken of the investment and loan of funds by the central government. These include (1) loans to such key private industries as shipping, coal, iron and steel, machinery manufacturing, import and export, and electric power; (2) loans to such under-developed areas as medium and small enterprises, agriculture, forestry, fisheries, and housing, for their development and for general social improvement; (3) loans for local agency activities; and (4) investments in such public enterprises as the Japan National Railways and the Japan Telephone and Telegraph Corporation. The most important source of these funds is the money collected by the government through postal savings and postal insurance. There are, in addition, funds received from the general account and the special account for public investment in key industries as well as funds made available through loans effected by public enterprises. These funds are invested or loaned at low interest rates to enterprises and agencies either directly by the government or indirectly through the Export and Import Bank of Japan, the Housing Loan Corporation, or other banking facilities. The amount of these funds has ranged from 300,000 million to 500,000 million *yen* each year since 1950; it is 519,800 million *yen* in the 1959 estimate. During the period 1951–1955, 30% of all the plant equipment funds obtained by Japanese enterprises from sources outside their own particular enterprise was derived from these measures. This proportion has recently decreased to less than 10% as economic reconstruction progressed and private capital became more ample. The control of excessive investment and lending has even become necessary.

While expenditures from the general account of the state tend to include many items of an obligatory nature, the amount of these investment and loan funds can be either increased or decreased as circumstances require to accommodate existing economic needs of the country. Their handling consequently permits greater flexibility, and they thus reflect the economic and financial trends of the times much more sensitively than do the expenditures from the general account.

VIII. *Types of Revenue*

The following table shows categories of revenue in the general account of the central government:

Table 15 *Classification of Revenue*

(Unit: 1000 million *yen*)

Fiscal Year	1926	1930	1936	1944	1947	1949	1958	1959
Taxes	0.89 (43%)	0.84 (52%)	1.05 (44%)	12 (15%)	146 (68%)	509 (67%)	987 (75%)	1,082 (76%)
Revenue from Stamps	0.08 (4%)	0.07 (4%)	0.09 (4%)	0.2 (0%)	1 (0%)	9 (1%)	39 (3%)	39 (3%)
State Monopoly Profits	0.17 (9%)	0.20 (13%)	0.22 (9%)	1 (1%)	42 (19%)	118 (16%)	117 (9%)	120 (8%)
Government Enterprises and Properties	0.28 (13%)	0.29 (18%)	0.09 (4%)	1 (1%)	2 (1%)	16 (2%)	26 (2%)	16 (1%)
Miscellaneous	0.06 (3%)	0.08 (5%)	0.26 (11%)	4 (5%)	19 (9%)	61 (8%)	43 (3%)	81 (6%)
Public Debt	0.03 (2%)	0.04 (2%)	0.61 (26%)	29 (36%)	—	—	—	—
Surplus from Preceding Fiscal Year	0.55 (26%)	0.09 (6%)	0.05 (2%)	1 (1%)	4 (2%)	46 (6%)	100 (8%)	81 (6%)
Borrowings from Foreign Banks	—	—	—	34 (43%)	—	—	—	—
TOTAL	2.1 (100%)	1.6 (100%)	2.3 (100%)	81 (100%)	214 (100%)	759 (100%)	1,321 (100%)	1,419 (100%)

Figures for 1944 revenue denote the net obtained by deducting overlapping duplications from the combined total of the general account and war costs special account. The same applies to all other tables.

A characteristic feature of revenue is that, whereas the relative importance of public bonds was great in pre-war years, such bonds have not been issued under the general account since 1947. The hard core of revenue in recent years has been tax receipts, with taxes in the broader sense (i.e., taxes plus revenue from government monopolies and revenue stamps) constituting nearly 90% of total revenue every year.

Taxes are the principal subject of the following chapter.

IX. *Growth of Taxes*

The Japanese tax structure undergoes revisions of one sort or another every year with the changes in the political, economic, and social picture.

After the feudal system collapsed and a capitalistic socio-economic order was formed in the middle of the nineteenth century, taxation also took on a modern form. The new government established in 1868 after the revolution endeavoured to modernize the tax system on a gradual basis, first by introducing a change from payment in kind to cash payment of the land tax, which in those days was the principal tax. From the time of the revolution until the early twentieth century, agriculture was the main industry in Japan's economy. (Seventy-seven percent of the population were farmers in 1870). The land tax, therefore, had a pivotal position in the system of national taxes, and revenue from this source represented from 50% to 90% of total tax yield during the period from 1867 to the time of Sino-Japanese War of the late nineteenth century. Although the importance of the land tax as one of the nation's sources of revenue has since gradually declined, it maintained first place in national tax receipts until 1908.

The income tax was put into effect in 1887, but its position as a source of revenue was, at first, extremely low. It was only after Japan's economy took its long strides forward during World War I that the personal and corporate income taxes became increasingly important in the Japanese taxation system. The income tax (personal and corporate) has since long competed for first place with the alcoholic beverage tax, and finally topped the list of tax revenue sources in 1935, a position it has kept to date. It represents 50% of total national tax revenue each year.

The most important tax revenue sources in recent times have been the personal income tax, the corporation tax, the alcoholic beverage tax, and the tobacco and other state monopolies.

The national tax revenue of Japan may be classified as follows:

Table 16 *National Tax Revenue*

(Unit: 1000 million *yen*)

Fiscal Year	1936	1949	1958	1959
(A) Ordinary National Taxes				
Personal Income Tax	0.15 (11%)	279 (44%)	245 (21%)	272 (22%)
Withheld at Source		142	194	207
Self-Assessed		137	51	65
Corporation Tax	0.13 (10%)	61 (10%)	331 (29%)	341 (27%)
Revaluation Tax	—	—	4 (0%)	4 (0%)
Land Tax	0.06 (4%)	—	—	—
Business Profits Tax	0.07 (5%)	—	—	—
Capital Interest Tax	0.02 (1%)	—	—	—
Mining Tax	0.005 (0.4%)	—	—	—
Excess Profits Tax	0.04 (3%)	—	—	—
Inheritance Tax	0.03 (2%)	4 (0.6%)	8 (1%)	8 (1%)
Transactions Tax	—	34 (5%)	—	—
Securities Transfer or Sales Tax	—	1 (0.1%)	2 (0%)	3 (0%)
Stock and Commodities Exchange Tax	0.02 (1%)	—	0.6 (0%)	0.6 (0%)
Alcoholic Beverage Tax	0.22 (16%)	83 (13%)	196 (17%)	209 (17%)
Soft Drinks Tax	0.004 (0.3%)	2 (0.3%)	—	—
Sugar Excise	0.09 (7%)	1 (0.1%)	53 (5%)	32 (3%)
Textile Excise	0.04 (3%)	13 (2%)	—	—
Gasoline Tax	—	4 (0.7%)	55 (5%)	82 (7%)
Commodity Tax	—	21 (3%)	44 (4%)	48 (4%)
Playing Card Tax	—	—	0.3 (0%)	0.3 (0%)
Travel Tax	—	5 (0.8%)	3 (0%)	3 (0%)
Customs and Tonnage Duty	0.18 (13%)	1 (0.1%)	45 (4%)	80 (6%)
Revenue from Stamps (Stamp Duty, Registration Tax, and Fees)	0.09 (7%)	9 (1%)	39 (4%)	39 (3%)
Revenue from State Monopoly Enterprises	0.22 (16%)	118 (19%)	117 (10%)	120 (10%)
TOTAL	1.36 (100%)	636 (100%)	1,143 (100%)	1,241 (100%)
(B) Local Allocation Tax				
Admission Tax	—	—	18	18
Local Road Tax	—	—	13	15
Special Tonnage Tax	—	—	1	1
TOTAL	—	—	32	34
GRAND TOTAL [(A) and (B)]	1.36	636	1,175	1,275

The local allocation tax, levied and collected by the central government, is national in form but is actually apportioned among local bodies according to population, road area, and other criteria. It is classified as a national tax in this report unless stated otherwise.[4]

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[4] Hanya Ito, "Direct Taxes in Japan and the Shoup Report", *Public Finance* Vol. VIII, No. 4 (The Hague: N.V. Uitg. W.P. van Stockum en Zoon, 1953). This gives an outline of the Japanese tax system, and is also to be found in Hanya Ito, *Essays in Public Finance*, Tokyo, 1954. Also, see Ito, "Staatshaushalt und Finanzsystem Japans," *op. cit.*, pp. 446—451.

X. *Direct and Indirect Taxes*

National taxes may be divided into direct and indirect taxes as folows:

Table 17 *Direct and Indirect Taxes*

(Unit: 1000 million *yen*)

Fiscal Year	Direct Taxes	Indirect Taxes	Total
1926	0.4 (34%)	0.7 (66%)	1.1 (100%)
1930	0.4 (34%)	0.7 (66%)	1.1 (100%)
1936	0.5 (37%)	0.8 (63%)	1.3 (100%)
1944	9.0 (66%)	4.0 (34%)	13.0 (100%)
1947	99.0 (52%)	90.0 (48%)	189.0 (100%)
1949	344.0 (54%)	292.0 (46%)	636.0 (100%)
1958	588.0 (50%)	587.0 (50%)	1,175.0 (100%)
1959	625.0 (49%)	650.0 (51%)	1,275.0 (100%)

The percentage of indirect taxes was larger than that of direct taxes during the pre-war years, while during the war the percentage of direct taxes was larger. After the war, the indirect tax again became larger. On the surface, this cannot be said to be a desirable trend, but it is an inevitable last resort taken to meet a situation in which the conditions for a progressive tax system in Japan had collapsed after the war in the economic chaos resulting from inflation, decline of productive capacity, deterioration of national morality regarding payment of taxes, and weakening of the tax authority.

It may also be worth noting that in post-war Japan the distinction between direct and indirect taxes lost the meaning it had had before. A series of circumstances and policies such as air raid damage, inflation, forced distribution of large farm lands among tenant farmers, a special capital levy, and the breakup of the "Zaibatsu" (powerful financial groups), all helped to equalize the distribution of national wealth in post-war Japan, in contrast to the opposite trend set in motion after World War I. It is commonly understood that, roughly speaking, direct taxes are mainly borne by the wealthy and indirect taxes mainly by the masses. In post-war Japan, however, the burden of both types of taxation fell, in most cases, on the same income bracket, thus giving direct taxes the colouring of mass taxation. In 1959, for example, the amount of self-assessed personal income taxes reported by persons with an annual income of less than 500,000 *yen* was estimated to be 48% of the 1,019,000 million *yen* total reported, and the number of such persons was 73% of the 2,014,000 total reporting. Analysis of taxable wage and salary incomes shows that the percentage of annual incomes less than 500,000 *yen* was an estimated 81% of the total taxable number of 9,118,000 or 61% of the total taxable amount of 3,340,000 million *yen*. If adjusted by the wholesale price index, 500,000 *yen* would come to 1,400 *yen* in terms of the value of the currency in 1936. Considering the fact that personal incomes of 1,200 *yen* or less were tax exempt at that time, it could be said that the majority of those in the present less than 500,000 *yen* a year bracket apparently would not have been liable to income tax in 1936. In 1936, the number of persons paying personal income tax was some 1 million out of a population of 68 million; whereas, in 1959, the number was 10 million out of 92 million. The sum of incomes in excess of 2 million *yen* was only 4% of total taxable income in 1957, while in 1935 it was 41%, in terms of present currency values. This is one of the factors supporting the proposal currently heard in Japan that the direct tax on low incomes be reduced and the burden transferred to a consumption tax.

XI. *Taxation and National Income*

The ratio of revenue from national and local taxes to national income is shown in the following table:

Table 18 *Taxation and National Income*

(Unit: 1000 million *yen*)

Fiscal Year	National Taxes*	Local Taxes	Total Taxes (A)	National Income (B)	A/B
1926	1.1	0.7	1.8	12.5	14%
1930	1.1	0.6	1.7	11.7	15%
1936	1.3	0.7	2.0	15.5	13%
1944	13.0	1.0	14.0	56.9	24%
1947	189.0	20.0	209.0	968.0	22%
1949	636.0	142.0	778.0	2,737.0	29%
1958	1,175.0	511.0	1,686.0	8,412.0	20%
1959	1,275.0	541.0	1,816.0	8,928.0	20%

* Local allocation taxes are included in national taxes.

The ratio of taxes to national income rose to a peak of 29% in 1949 but has dropped since, and currently stands at 20%.

The Japanese standard of living after the war has been appreciably lower than before the Chinese Incident of 1937. The proportion which food expenses represented in the household budget of city wage earners, for instance, was 34% in 1936, 65% in 1947, 60% in 1949, and 41% at present. If, with these Engel coefficients as a basis, free income is computed by deducting estimated food expenses—which may be considered the minimum living expenses—from national income, the ratio of taxes to this balance, which is regarded as the maximum taxable capacity, comes to 19% for the years before 1936, 51% for 1947, 72% for 1949, and 34% at present. Thus, at present, the tax burden is almost twice as heavy as in pre-China Incident days.

XII. *The Tax System and Capital Accumulation*

The special measures employed in the present tax structure are to lighten the tax burden with a view to the promotion of economic development. The most important ones are described below:

(1) Special Treatment of Income from Interest

In the Japanese income tax structure since 1899, income from interest in the broad sense, such as from bank deposits, public bonds and debentures, and dividends from trusts, has not been included among objects of general, comprehensive, graduated (progressive) income taxation, but has been separated from other types of income. It has been taxed at a proportional rate and withheld at the source upon payment. The system has been constantly criticized as unfair, since it spares those who have large incomes from interest from an otherwise heavy tax burden which they would have to bear should a progressive rate be applied. Suspended for three years, from 1950 to 1952, this system was reinstated in 1953 as a temporary measure, with the term of validity and enforcement limited to a few years. Interest income was totally exempted, furthermore, in 1955 and 1956. Although some changes were made later, the 1959 revisions provided for a proportional tax of 10% on interest incomes. One argument in favour of these measures is their real contribution in actual fact toward the encouragement of savings, although there is no denying their unreasonableness viewed from a standpoint of the equitable distribution of tax burden.

(2) The Lightening of the Tax Burden on Enterprises

Principally as special measures with periods of enforcement limited to a few years, reduction of, or exemption from, taxation has been extensive and common in Japan with regard to many types of taxes, especially income and corporate taxes. This tendency became pronounced above and beyond the exemption of income from interest in 1950, and the year 1956 saw the adoption of the following special measures primarily concerning enterprises: 1) For the purpose of promoting the accumulation of enterprise capital, when corporations issued new stock, the amount of dividend up to 10% of the new capital was exempted from corporation tax. 2) For the purpose of keeping enterprise profits within the enterprise, taxation was deferred for several years on portions of profit reserved for bad debts, price fluctuations, and retirement allowances. 3) For the purpose of encouraging investment in plant equipment and modernization, accelerated depreciation was allowed on machinery and equipment in key industries including steel and iron, on vessels plying international lines, and on costs to trading companies in setting up overseas branch offices. Heavy machinery was also exempted from import duty. 4) For the purpose of encouraging export, certain portions of traders' incomes derived from exports were made tax exempt. 5) For the purpose of fostering key industries, such industries and enterprises as electric power, copper mining, coal, petroleum, chemical fertilizers, and synthetic fibers were exempted from income tax for three years after establishment. A tax reduction was given on income from quota-delivery of rice sold to the government by farmers. Aviation gasoline was exempted from excises. It is estimated that the taxes waived through these measures totaled 105,000 million *yen* (62,000 million for corporations and 43,000 million for private individuals) in 1957. This sum was well over 20% of all personal and corporation income tax revenue (500,000 million *yen*) at the time. Ostensibly, the benefits applied equally to all enterprises, but in actual fact the principal beneficiaries were corporations, especially large corporations, and many of them found from 40% to 60% of their income exempted under these provisions.

While these tax exemptions or reductions all undoubtedly contributed in some way to Japan's economic development, they upset the balance of distribution of the tax burden among the people, and were, therefore, the subject of constant controversy until the 1957 tax reform did away with nearly half of the exemptions. However, there still remain many special reductions on income from exports and other fields.

XIII. *Public Debt*

In view of the fact that the indiscriminate floating of public loans underwritten by the Bank of Japan for non-productive purposes or for the purpose of supplementing revenue deficits had caused inflation in the past, the following restrictions were placed on the issuing of national bonds by the Public Finance Law of 1947: 1) Borrowing or the issuing of public bonds shall be permitted only when they supply funds for public works, capital financing, and loans; 2) The Bank of Japan shall not underwrite public bonds and debts as a rule, though it may, under special circumstances, within certain limits, and with Diet approval.

As stated earlier, public bonds have not been issued in Japan for the purpose

Table 19 *Outstanding Public Debt*

(Unit: 1000 million *yen*)

Fiscal Year	Central Government (A) (Domestic Loans Only)	National Income (B)	$\frac{A}{B}$	Local Loans
1926	3.7	12.5	30%	1.5
1930	4.4	11.7	38%	2.4
1936	9.2	15.5	60%	3.6
1944	107.0	56.9	188%	5.0
1947	209.0	968.0	22%	21.0
1949	291.0	2,737.0	11%	72.0
1958	393.0	8,412.0	5%	860.0
1959	382.0	8,928.0	4%	925.0

Figures are as of the end of each fiscal year.

of creating financial resources for the general account of the central government since 1947. They are issued every year, however, under the special accounts of the central government and the quasi-governmental organizations, and by local bodies.

Table 19 shows the amount of unredeemed public debt in national and local finances.

Among the debts of the central government, there are at present, besides those previously mentioned, outstanding foreign debts amounting to 80,700 million *yen*, unpaid war reparations totaling 364,000 million *yen*, and loans from the United States under GARIOA and EROA totaling 1,863 million dollars.

XIV. *Local Finance*

At present, there are some 3,700 local government units in Japan. Total receipts and expenditures of these bodies, as classified under recent fiscal plans, are shown in the following two tables.[5]

Table 20 *Expenditures of Local Bodies*

(Unit: 1000 million *yen*)

Fiscal Year	1958	1959
(1) Consumption Type Expenditures	782 (63%)	835 (63%)
Wages and Salaries	473 (38%)	515 (39%)
Pensions	22 (2%)	24 (2%)
Supplies and Other Expenses	287 (23%)	297 (22%)
(2) Public Debt, Principal and Interest	83 (7%)	82 (6%)
(3) Investment Type Expenditures	372 (30%)	417 (31%)
Public Enterprises	296 (24%)	339 (25%)
Unemployment Relief Projects	34 (2%)	36 (3%)
Property Maintenance and Repair Expenses	42 (4%)	42 (3%)
TOTAL	1,237 (100%)	1,334 (100%)

Table 21 *Receipts of Local Bodies*

(Unit: 1000 million *yen*)

Fiscal Year	1958	1959
Local Taxes	511 (41%)	541 (41%)
Local Allocation Tax	32 (2%)	33 (2%)
Distribution Tax	224 (18%)	249 (18%)
Subsidies and Other Funds from the National Treasury	309 (25%)	343 (26%)
Public Debt	45 (4%)	50 (4%)
Fees	40 (3%)	42 (3%)
Other Revenue	76 (6%)	76 (6%)
TOTAL	1,237 (100%)	1,334 (100%)

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[5] There are many difficult problems yet to be solved in local finances in present-day Japan. See Hanya Ito, "Staatshaushalt und Finanzsystem Japans," op. cit., pp. 443—446.

ON THE METHOD OF THE ECONOMIC PLAN (1958–62) OF JAPAN

By YUZO YAMADA

Professor of Economics

I. *Problems*

The economic plan of Japan to be discussed here was announced in November, 1957 and its whole text was published in English as a separate edition under the title of "*New Long-Range Economic Plan of Japan* (*FY1958–FY1962*)," by Economic Planning Agency, 1958. For details, readers will please see the edition. In this article I intend to deal with the method of this new economic plan. I would like to make clear certain special features of the plan which I feel are rather different from those of the European and American counterparts in its method.

Attention must be called to the following points in advance. The problem lies in the method by which the annual average growth rate of Japanese economy for the next five years has been estimated at 6.5 per cent, but I do not intend to take up here the general discussion of whether this rate is either too high or too low. There can probably be various arguments on this. A problem like this is a fairy complicated one when viewed fundamentally and involves many intricate factors; the answer depends on the extent to which the plan can be made adjustable to reality as well as on the extent to which the measures for its implementation can be enforced. Anyhow, there is no objective criterion for passing judgment on the future growth rate, and, therefore, the matter is of a nature that requires intuitive judgment within a considerably wide framework. It leaves a problem, however, of organizing data and methods upon which any concrete judgment of this kind has to rely. From the academic viewpoint, it is rather important to take up such a problem.

Data and methods do not constitute "sufficient conditions" from which a correct judgment can directly be formed. They are "necessary conditions", however, in the sense that they must be respected if a correct judgment is to be desired. What I intend to take up here is the method of the plan and not the sufficient conditions for the 6.5% growth rate. I merely intend to inquire into the method of obtaining a growth rate as its necessary condition.

In fact, three different growth rates were anticipated by the plan in its original draft, and were examined, from the standpoints of investments, foreign trade, employment, etc. This led to a conclusion that the rate of 6.5% would be about reasonable, but as far as the officially announced plan is concerned these particulars were stated only briefly. The following explanation is given in the aforementioned English edition of the plan:

> "The annual average 6.5 per cent rate of economic growth is adopted as an optimal rate of growth which can be realized and maintained persistently on a stabilized basis satisfying the equlibrium conditions... i.e., balances between investments and savings, in the international payment accounts, between demand and supply of employment, and among developments in principal industries. On selecting the optimal economic growth rate, we assumed three rates of growth and economic structures and made extensive studies respectively on whether or not the equilibrium conditions shall be met under each one of these assumptions. The three rates are: (A) a relatively low rate which is near the average rate of growth in prewar years, (B) a high rate which corresponds to the rapid development in recent years, and (C) an intermediate rate ranking between the above-mentioned two." (Economic Planning Agency: *New Long-Range Economic Plan of Japan*, Part II, 2.)

This explanation can easily be misinterpreted. According to the explanation, the three rates are "(A) a relatively low rate...in prewar years, (B) a high rate...in recent years, and (C) an intermediate rate..." In actuality, however, these rates were obtained by making an industry-wise study of postwar rates. Furthermore, except in the incomplete explanation quoted above, no detailed explanation of the process through which these three rates were examined was given in the officially announced plan, and the plan described on the whole the future of Japanese economy on the assumption of 6.5% growth rate, and therefore, it is concealed behind the scenes how the rates were dealt with numerically.

I would like to touch here on the method of selecting a growth rate with the help of figures available outside the official announcement. For your information, some of these figures are based on those published in certain Japanese economic periodicals by the drafting members of the Economic Planning Agency, while others are secured from other sources or supplemented by those of my own.

II. *Three Different Growth Rates*

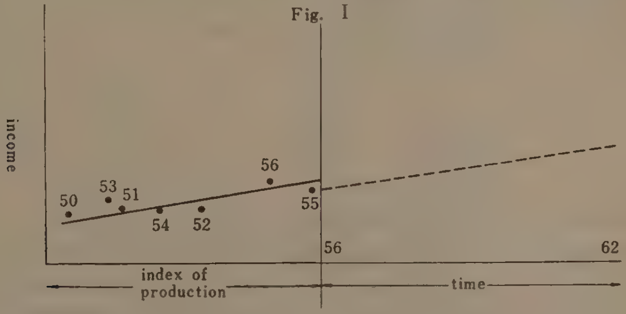
The method of the Economic Planning Agency is to obtain three separate rates for the growth of national income as classified by industries. It employs a method which traces trends chiefly on the basis of past data. Procedures of its application to industries are as follows.

The Income from Primary Industries

An equation of correlation between the production index of, and the income from, agricultural, forest, and fishing industries is sought for the period from

1950 to 1956, and then a growth rate of 2.5% is obtained. In this case, the rate obtained is single and not differenciated into three. To illustrate this graphically, the horizontal axis on the left hand portion of Figure I below indicates the production index, and the vertical axis, the size of income, and their intersecting relationships during the period from 1950 to 1956 are shown by seven points, one for each year. A straight trend line or an equation $Y=aX+b$ (Y income, X production index) is then obtained by the least-squares method. By computing from this line an avarage growth rate of production and income for each year, an annual growth rate of 2.5% is obtained. Next, this line is extended into the right hand portion of the graph, where the horizontal aixs represents the series of time from 1956 to 1962 and the line to be extended is constructed in such a manner as to indicate a growth rate of 2.5% for each year. The position of the original point, however, does not indicate the actual but the so-called base value of the size of income for the year 1956 as appeared on the trend line on the left side.

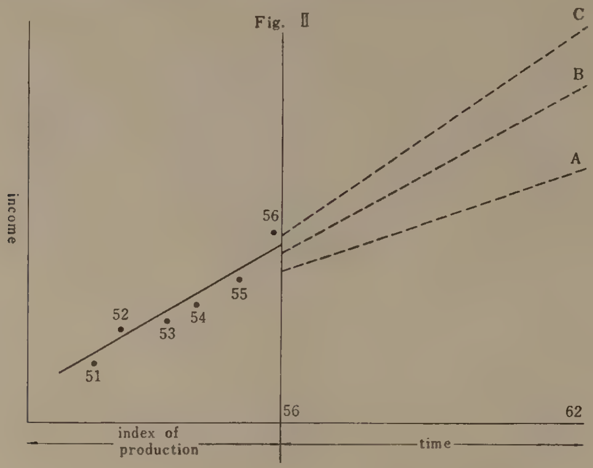
Fig. I



The Income from Secondary Industries

Similar procedures are applied but here are obtained three separate rates. They will be named A, B, and C. Let me illustrate this graphically again. Those points on the left side portion of Figure II indicate the intersecting relationships between the production index (called the index of industrial activity) and the income of secondary industries for the years 1951 through 1956. From these an equation for correlation between the two is obtained as before and this is shown by a trend line in the graph. In computing an annual growth rate, however, the entire period is not taken as a whole but is devided into three periods to produce three separate rates. First, the most gentle rate (A) is obtained by selecting a three-year period from 1952 to 1954. A less gentle rate (B) is obtained for a five-year period from 1951 to 1955 and the most steep rate (C) for a four-year period from 1953 to 1956. An average, annual growth rate of income for each of these three periods is: 4.9% for A, 7.3% for B, and 10.3% for C. (An intermediate rate was treated as (C) in the quotation previously made from the text of the plan, whereas the order of B and C is reversed here as might have been noted by the reader.) Now, three trend lines in the right-hand portion of the graph shows these three rates as extended into the future. Here again, a base value as appeared for 1956, not the actual value, is to be used as an original point but it is computed seperately in each case of three different growth rates.

Fig. II



The Income from Tertiary Industries

Correlation between production and income can not be sought in this case, and, therefore, the other procedures are used. Here a correlation between the income from primary industries (Y_1) and secondary industries (Y_2) and the income from tertiary industries (Y_3) for the period 1951–56 is obtained by an equation $Y_3=a'(Y_1+Y_2)+b'$. In extending this into the future, numberical values are substituted for Y_1 and Y_2 and since Y_2 has three numerical values, Y_3 will also produce three numerical values.

Total National Income and Gross National Product

By adding up the incomes as classified by industries and computed as above, the national income and the gross national product can be computed. Let me show this in actual figures.

The figures in the column of "Income by Industries" represent the base value for 1956 and the plan value for 1962 which were computed by the methods explained above for each of the primary, secondary, and tertiary industries. "National Income" is a sum total of "Income by Industries" but there is a separate income from overseas constituting 0.4% (minus) of national income, and, therefore, this has to be deducted. Besides "National Income", there is a category of "Gross National Product" consisting of national income plus indirect enterprise tax, capital consumption, and others which in the past constituted 17.4%.

			1956FY 100 (million yen)	1962FY 100 (million yen)	Average Annual Rate (%)	Basis for Computation
Income by Industries	Primary	A	14,595	16,907	2.5	An equation of correlation between production index and income of agriculture, forestry, and fisheries, 1950–56.
		B				
		C				
	Secondary	A	27,787	37,025	4.9	An equation of correlation between index of industrial activity and income, 1951–56; growth rates for A, B, and C are obtained by selecting three periods, that is, 1952–54 for A, 1951–55 for B, and 1953–56 for C.
		B	29,587	45,154	7.3	
		C	31,535	57,096	10.3	
	Tertiary	A	25,834	35,063	5.7	Obtain an equation of correlation between total income from primary & secondary industries and income from tertiary industries, 1951–56; subsitute numerical values for the income of primary industries and for the income of secondary industries in the equation.
		B	27,274	41,558	7.3	
		C	28,829	51,099	10.0	
National Income		A	67,943	88,639	4.5	Add net income from over-seas (−0.4 %) to income classified industries.
		B	71,168	103,205	6.4	
		C	74,659	124,602	8.9	
Gross National Product		A	82,279	107,342	4.5	Add to national income indirect enterprise taxes (9 %), capital consumption (8.1 %), etc., totaling 17.4 %.
		B	86,184	124,981	6.4	
		C	90,412	150,893	8.9	

The growth rate of gross national product thus obtained is 4.5% (Plan A), or 6.4% (Paln B), or 8.9% (Plan C). Plan B is later modified and yields the so-called 6.5% rate in the announced plan.

Also computed on the basis of three growth rates for national income or gross national product are the growth rates for national expenditures such as consumption, savings, and grovernment expenditures. The growth rate of national expenditures, however, is to be considered of secondary importance. Fundamentally, three growth rates are to be assumed from the standpoint of production, and, then, in keeping with these rates, an attempt is to be made to find a growth rate for each item of expenditures. Therefore, the computation of growth rates for national expenditures are omitted here. The relation between savings and investments, however, will be dealt with, out of necessity, in the following section.

III. *Gaps Resulting from Size of Growth Rates*

When three growth rates are obtained from the standpoint of production, their size is studied to see what kind of a gap it creats between investments and savings, between supply and demand of employment, and between imports and exports of trade. Since a gap may take place when the rate is either too low or too high, an attempt is made to chose one which will cause as small a gap as possible. This may be a truism inasmuch as any plan is after all an attempt at adjusting potential gaps which are anticipated in the future as well as at present. The question is where to find the gaps and how to handle them. In the following paragraphs, major gaps will be explained.

Gaps between Investments and Savings

The first question that arises is: how the three growth rates affect savings which are brought forth by income and how they affect investments (capital formation) which are needed to produce income.

As for savings, an average rate of savings can be obtained by finding an equation (for a straight line) between gross national product and gross national savings for the period between 1951 and 1956. Apply this equation to the three growth rates for future gross national product, and then the values for future savings can be computed.

As for investments or necessary capital formation, the marginal capital coefficient is employed and the following equation, a modified form of so-called Harod's basic theorem, is applied,

$$\text{Income growth rate } \left(\frac{\Delta Y}{Y}\right) \times \text{Marginal capital coefficient } \left(\frac{\Delta K}{\Delta Y}\right)$$
$$= \text{Rate of necessary capital formation } \left(\frac{\Delta K}{Y}\right).$$

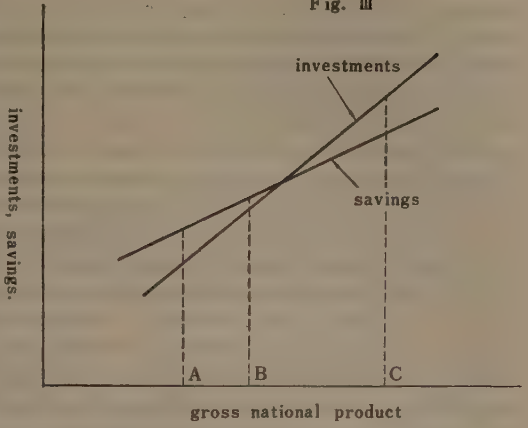
$\frac{\Delta K}{\Delta Y}$ or marginal capital coefficient is obtained from past data and then values for necessary capital formation (investments) are computed.

The figures of savings and investments thus calculated are given below. Here the terms, gross savings and gross investments, must be understood to include capital consumption.

		1956 FY (100 million yen)	1962 FY (100 million yen)
Gross Savings	A	23,299	31,394
	B	24,560	37,072
	C	25,926	45,461
Gross Investments	A	18,601	24,048
	B	23,898	34,578
	C	31,773	53,280

The gross savings for 1956 and 1962 can be also computed in three different ways according to the three growth rates of gross product. Likewise, the gross investments for 1956 and 1962 were obtained by employing the three rates for gross product and the marginal capital coefficients. It is more important here, however, to compare gross savings with gross investments for the year 1962.

Fig. Ⅲ



Let me illustrate this graphically. In Figures III, it will be noted that in the case of A where the growth rate is low, savings are greater than investments (necessary capital), whereas in the case of C where the growth rate is high, investments (necessary capital) are greater. This illustrates what is called a gap between savings and investments.

In the above explanation the computation of invest-

		1962 FY (100 million yen)	Imaginary Marginal capital coefficient	Basis of Computation
Primary Industries	A	2,150	5.0	Multiply an increase in income from industries for 1962 over previous year by the marginal capital coefficient.
	B			
	C			
Secondary Industries	A	9,095	4.3	Multiply an increase in income from secondary industries for 1962 over previous year by the marginal capital coefficient.
	B	15,020	4.0	
	C	26,064	4.0	
Tertiary Industries	A	1,369	0.85	Multiply an increase in income from tertiary industries for 1962 over previous year by the marginal capital coefficient.
	B	2,116	0.85	
	C	3,578	0.85	
Sub-total	A	17,981	(3.92)	To the total of above three, add government investments (or 5% of gross national income). The marginal capital coefficient figures in parentheses are obtained by reverse operation.
	B	25,535	(3.41)	
	C	39,337	(3.17)	
Inventory Increase & Decrease	A	3,896	0.85	Multiply an increase in gross national production for 1962 over previous year by the marginal capital coefficient.
	B	6,372	0.85	
	C	10,537	0.85	
Personal Housing Construction	A	2,171	—	Obtain an equation of correlation between gross national production and housing construction for the period 1951-56.
	B	2,671	—	
	C	3,406	—	
Total Investments	A	24,048	(5.25)	Total of above three major groups. The marginal capital coefficient figures in parentheses are obtained by reverse operation.
	B	34,578	(4.61)	
	C	53,280	(4.30)	

ments is simplified but, in actuality, investments are classified into three main items—equipment investments, increase and decrease in inventory, and personal housing construction. Of these, equipment investments are further itemized by industries and marginal capital coefficients are used where applicable. The above table shows the breakdown of investments. The general method of computation will become clear if the reader reads the basis for computation. The figures of total gross investments are the same as those previously given in a table.

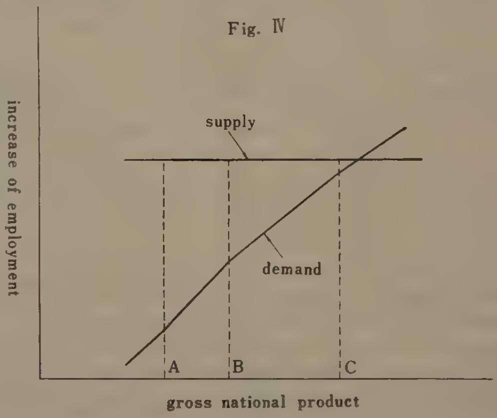
Gaps between Supply and Demand of Employment

Demand of employment here means an amount of net increase in employment that is to be absorbed into industries during the period covered under the plan. Three rates of employment increase is computed according to the three growth rates of future national product by finding the relation between the national product and the employment increase from the data of the past. Supply of, employment is an amount of net increase in employment that can be estimated from population or labour force in particular. Here the number of those seeking employment after finishing secondary schools, high schools and universities is first computed and then the number of those retiring is subtracted to yield net increase. A conclusion drawn in this manner is found in the table above, showing the breakdown of estimated supply. The estimate of demand will be touched upon again later.

Demand and Supply of Employment		1956–62 Net Increase (thousand)
Demand	A	1,074
	B	2,618
	C	4,446
Supply	Those seeking employment among new labour force	7,718
	Retierments	2,911
	Balanced net increase	4,807

It is easy to illustrate the above graphically. Three different rates of increase in the demand for employment during the period from 1956 to 1962 are indicated here by

Fig. IV



three different heights. Their distance from the horizontal line representing increase in the supply of employment indicates a gap between demand and supply. In every one of the cases, A, B, and C, demand is lower than supply: the gap is largest in Case A where the growth rate is low, and the gap is smallest in Case C where the rate is high.

In making an industry-wise estimate of employment demand, the increase in employment in primary industries is estimated at zero since the number of those employed in the industries is decreasing rather than increasing as has actually been revealed in the census. The employment demand in secondary and tertiary industries is calculated by utilizing a correlation between national income and employment for each year from 1950 to 1956. This is shown by the figures given below.

Demand of Employment by Industries		Increase 1952–62 (thousand)	Basis of Computation
Secondary Industries	A B C	658 1,506 2,508	An equation of correlation between national income and employment in secondary industries, 1950–56.
Tertiary Industries	A B C	416 1,112 1,938	An equation of correlation between national income and employment in tertiary industries, 1950–56.
Total	A B C	1,074 2,618 4,446	Total of the above two. Increase of employment in primary industries is estimated at zero.

It must be noted at this point that these original figures were revised under the 6.5% plan to such an extent that, even the figures for B, which supposedly provided a basis for the announced plan, indicate that demand slightly exceeds supply. This must be explained later again.

Gaps between Imports and Exports

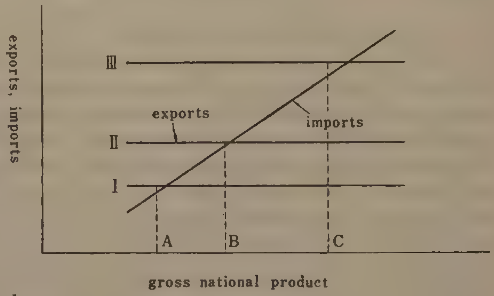
The next problem is the gap between imports and exports. As for imports, the degree of dependence upon it can be found from past data, and three different degrees are contemplated on the assumption that the degree will go up higher as the growth rate of national income rises. As for exports, a correlation between the index of world trade and the index of Japanese exports is obtained and three possibilities for the growth rate of world trade can be imagined. The figures thus computed are given in the following table but they do not directly indicate any gaps. In other words, these three sets of figures for imports (A, B, C) correspond to the three hypothetical degrees of dependence upon imports, each degree determined in turn in proportion to the growth rates of income. The three figures for exports (1, II, III) has no direct relation to the growth rates of income, however, as they were rather computed in such a manner as to yield the export amount

	1956 FY (million dollar)	1962 FY (million dollar)
Imports	2,470	(Hypothetical Degree of Dependence on Imports) A If 13.8 %..................3,481 B If 15.4 %..................4,527 C If 17.1 %..................6,062
Exports	2,402	(Hypothetical Growth Rate of World Trade) I If 2.7 %..................3,644 II If 4.6 %..................4,766 III If 7.4 %..................6,416
International Balance Payments	Receipts 3,337 Payments 3,566	Suppose: Receipts=Payments A 4,118 B 5,345 C 7,144

which is necessary to cover the figures under A, B, and C for imports, thus indicating three hypothetical growth rates of world trade. In the column of international balance of payments, therefore, the difference in the balance is zero as indicated by the figures given. There is no way to tell but exteriorly which of these hypothetical rates should be adopted. Here, Exports II is considered to be about reasonable and Imports B is accordingly selected. The fact is illustrated by a graph (Figure V): the exports are divided into three heights (I, II, III) according to the low, medium, and high growth rates of world trade, while the imports into three (A, B, C) according to the gross national product, and the selection of I, II, and III here is assumed to be based on the hypothetical growth of world trade.

As for the study of the degree of dependence upon imports, an estimate is made according to the relations between (1) individual consumption and the imports of food stuffs, (2) the index of industrial activities and the imports of raw materials, (3) the index of mining and industrial production and the imports of finished producers' goods, and (4) the amount of gross imports and the imports of finished counsumers' goods. These will not be dealt with here.

Fig. V



Thus the main points of the idea are explained in the above. A similar study has been also made of the effects of growth rates on energy and transportation but this will be omitted at this time, because further detailed discussion will, I am afreid, rather obstruct the understanding of the subject. In fine, the main concern here is to explain numerically that, of the three hypothetical growth rates determined on the basis of production, a high rate causes the required capital amount to exceed savings, a low rate makes it totally impossible for employment demand to absorb supply, and again a high rate increases imports and makes it difficult for exports to expand to the extend of balancing the payments.

IV. *Comparison between Figures in Plan B and those in the Announced Plan*

It was previously mentioned that the growth rate of gross national product was 5.4%, 6.4, and 8.9% in Plans A, B, and C, respectively. After studying these plans from the standpoint of investments, trade, and employment, it was concluded that Plan B would be reasonable for adoption. Plan B, however, was not announced as it was but its figures were re-examined and revised before finally authorized for announcement.

The revisions of certain nature are undoubtedly unaboidable. In the process of operation, for instance, when only the tentative figures are available for 1956, they must naturally be replaced by the final ones as soon as available. Furthermore, errors made in computation under the pressure of time must certainly be corrected. In certain cases, however, considerable change has been made in the premises since the time Plans A, B, and C were drafted. The revisions of this kind, if carried too far, would render the comparison of these original plans meaningless. Regrettably a few such cases are found in the announced plan. If the premises have to be modified at all, all three original plans must be done over. Therefore, the way Plan B was isolated for revision and its premises modified to form a basis for the announced plan appears, to me, to be rather unconvincing.

Let us now compare the figures in Plan B with those in the announced plan

		1956 FY (100 million yen)	1962 FY (100 million yen)	Average Annual Growth Rate (%)
Primary Industries	B	14,595	16,902	2.5
	B′	14,186	16,940	3.0
Secondary Industries	B	29,587	45,154	7.3
	B′	31,019	47,170	7.2
Tertiary Industries	B	27,274	41,558	7.3
	B′	28,931	44,000	7.2
National Income	B	71,168	103,205	6.4
	B′	73,841	107,740	6.5
Gross National Income	B	86,184	124,981	6.4
	B′	89,396	130,440	6.5

according to the classification by the aforementioned items. The table above shows the figures on the income by industries, the national income, and the gross national product. Here "B′" indicates the announced figures. As for the last column for an average annual growth rate, primary industries show a change from 2.5% to 3.0%, secondary and tertiary industries, a margin of 1.0% respectively, and finally the national income or the gross national product, a shift from 6.4% to 6.5%.

The following table indicates that the gross savings on one hand and the gross investments (plus margin in international blalance of payments) on the other were revised to strike a balance. This is a kind of the thing which is to be balanced in terms of national accounting but even so the revised amount of investments, particularly equipment investments, seems to have been increased remarkably, and so does the marginal capital coefficient seem to have been increased accordingly.

		1962 FY (100 million yen)	Marginal Capital Coefficient
Gross Savings	B	37,092	—
	B′	38,930	—
Gross Investments	B	34,578	(4.61)
	B′	37,180	(4.70)
		1,750 (Margin in Balance of Payment)	—
Equipment Investments	B	25,535	(3.41)
	B′	27,390	(3.49)
Inventory Increase or Decrease	B	6,372	0.85
	B′	7,180	0.92
Personal Housing Construction	B	2,671	—
	B′	2,610	—

There is a problem with regard to employment. As shown in the table below, the demand for employment jumped from 2,618 (thousand persons) of Plan B to 4,980. This is particularly notable in tertiary industries. This revision seems to be based on the revision in the numerical expression of the trend

			Increase: 1956–62 (thousand)
Employment Demand	Secondary	B	1,506
		B′	1,770
	Tertiary	B	1,112
		B′	3,210
	Total	B	2,618
		B′	4,980

line for the past but what this revision appears to say is that, while demand shortage was inevitable even under the highest rate of income growth in the original plan, the moderate growth rate in the revised plan can more than absorb newly created labour force. This changes the premises completely. Probably the original estimate may be a little too pessimistic. Notwithstanding, the attempt can be suspected of having evaded an attack on the slack employment measures in order to push Plan B.

Finally, let me give the figures for trade. Here both imports and exports were revised and placed on a little smaller scale. The only change is in the balance of international payments where the balance was previously zero but is now 650 million dollars. What we want to know rather is the manner in which a gap between receipts and payments presents itself. If 650 million dollars is to be created in surplus under the 6.5% growth rate plan, I am curious to know, how much a growth rate can go up, before it creates any deficit. No numerical explanation on this is given in the announced plan.

		1956 FY (million dollar)	1962 FY (million dollar)
Imports	B	2,470	4,527
	B′	3,050	4,230
Exports	B	2,402	4,776
	B′	2,495	4,422
Receipts in International Accounts	B	3,337	5,345
	B′	3,337	5,080
Payments in International Account	B	3,566	5,345
	B′	3,566	4,430

In this article, a comparison between the figures of plan B and the officially announced figures B′ has been made only to the extent of serving the purposes of this article. As the reader may know the officially announced plan attempts a further detailed explanation under various classifications like mining and manufacturing industry, energy, agriculture-forestry-fishing industry, construction and transportation, employment, national livelihood, foreign trade, and finance and banking. Now, the most important point relevant to our problem is that the comparison of the original three plans (A, B, and C) has been left out all together in the announced plan. There the three plans are hidden behind the scenes and the emphasis is placed on describing what the Japanese economy would look like when developed under the 6.5% growth rate plan.

According to the explanation given in the announced plan, it sounds as if the 6.5% had been reached by striking a mean between the prewar rate of 4% and the postwar rate of 9%, but it is clear from the above that it was not the case. To be sure, A is 4.5% and C is 8.9% in the original plan and, in so doing, differentiation between the prewar and the postwar growth rates is undoubtedly taken into consideration. In the original plan, however, there was an intention, in relation to this, to bring in a structural view of classifying income by industries. Furthermore, the announced plan left out all numerical explanations as mentioned previously. I wish they had been included in the announcement as a sort of an appendix.

V. *Merits and Demerits of New Long-Range Plan*

A predecessor of the above mentioned New Plan, the Five Year Economic Plan was drafted and announced at the end of 1955. In this plan, an increase in per capita productivity and in the number of those gainfully employed was first estimated, multiplied by each other to yield gross national product, and then increases in various items of gross national expenditures—consumption, capital formation, and Government expenditures—were proportioned accordingly. It was then called "Colm's Method", since it resembled the method Gerhard Colm mentioned in "*The American Economy of 1960*." Colm, however, classified national expenditures into several patterns, whose effect he scrutinized minutely. In this respect his method has a phase which is markedly different from the previous Five Year Economic Plan of Japan. There is no doubt, however, that the plan was drafted in essence in a manner that approximates Colm's method. Not only Colm but also many other model plans of the United States and European-countries have followed a similar idea based on the so-called "principle of effective demand." Incorporating the need of Japanese economy, the recent New Plan, in comparision, has many excellent strong points.

First, mention must be made of its attempt at computing national income or gross national product by classifying income by industries rather than by means of an over-all per capita productivity. The reason why per capita productivity is not considered is that it is difficult to estimate where a phenomenon like latent unemployment is present. Industry-wise classification was considered not because the computation by such classification yields greater accuracy than by totaling. In a country like America where the industrial structure undergoes relatively less changes, it is possible to get a fairy stable result but in a country like Japan where the industrial structure fluctuates considerably, it is dangerous to ignore the figures given by industry-wise classification. Because such figures are taken into consideration, however, it does not follow that a stable figure can be obtained. In an economy which is unstable from the outset as in the case of Japan, the issue lies in an attempt itself to envisage a pattern of development for its industrial structure or trade structure. Therefore it must be noted here that the main issue does not lie in the structure of effective demand as is the case with Colm.

Secondly, the recent plan attempted to minimize as much as possible the gap to be brought about by various growth rates between savings and investments, demand and supply of employment, and imports and exports. This point is not found in the previous plan and may probably be a strong point of the recent plan. It is regrettable that this has been hidden behind the scenes and was not announced. A democratic plan should not dictate directions high-handedly but should inform the people correctly. Even in Colm's method, several patterns of expenditure structures were illustrated to clarify resultant gaps and I think this is a strong point of Colm's method. Gaps in Japanese economy admittedly lie outside the structure of expenditures and the various gaps taken up in the recent plan can be said to be among those which are significant to Japanese economy. Resources, transportation, and energy should, of course, be taken up next and these are included in the recent plan.

Thirdly, the merit of the plan lies in that required capital amount is considered as a bridge between production and expenditures. In the previous plan, only a parallel between the gross national production and the gross national expenditures were drawn. In the recent plan an atempt is made to relate production and expenditures by establishing a bridge between capital amount which enables production, and savings which comes out of expenditures. Although the numerical value of marginal capital coefficient to be used in this case can not be expected to prove reliable for certain but the idea seems to be worth noting.

The above points are the merits to be found in the New Long-Range Plan, but along with these strong points, there are also several questions to be found in the plan.

First of all, in the new plan, the value of the past trends provided the final bases on which the computation of the growth rates by industry-wise classification was made. This does not differ much from the method of the previous plan which sought per capita productivity in terms of the past trend value. We do not deny that there is no data other than past statistics to base our judgement upon. As far as the growth rates are to be classified by industries, however, inquiry must be made into the possiblities of renovating the technology of major industries and of breaking the bottlenecks in resources. More concern had better be given the technological aspect of the matter which lies behind the scenes of growth rates. The problem lies in connecting the past trend value with the future possibilities. The same thing can be said of the assumption of the capital coefficient and the degree of independence upon imports. In this connection there still remain many problems concerning the organization of past statistical data, but be that as it may, the final problem to be encountered inevitably is that of probing into the technological possibility. A plan is not an extension of the past; one has to keep an eye on the switch from the old to the new or on a change which will take place in the course of development. A plan must be made from the view point of changes or breaks. To this end, the positions where we now stand are examined and a future direction searched. The problem of statistical figures must eventually be related to the problem of history.

Furthermore, various questions of institutions are involved in this plan. Needless to say, any plan must have the support of institutions which are sufficiently strong to carry it out. It is necessary to have a way to detect at an early stage a lag between a plan and its practice, or a means to correct it and put the plan back on the right truck. Also fundamentally, an organization to promote an investment plan is necessary. In the current Japanese plan, however, there can be found no serious attempt to take up these questions. It seems to me that this is a problem of great significance yet to be solved.

BALANCE OF TRADE AND ECONOMIC GROWTH IN JAPAN[1]

By Keinosuke Baba

Professor of Economic Philosophy

I. *Balance of Trade and Steady Growth of Economy*

In the open system of national economy, the balance between investment and savings is formed as follows:

$$S=V_d+(X-M)$$

Where S, V_d, X and M show the values of saivings, domestic investment, exports, and imports respectively. Restated, it becomes as follows:

$$S+M=V_d+X$$

If there is such a relation as $X=\beta M$ between the value of imports and that of exports, the following equation holds:

$$S+(1-\beta)M=V_d$$

In the open system of national economy, even if savings and domestic investment, or imports and exports are not balanced, a balance in the national economy can be made. If there is the trend $S>V_d$, the balance may be formed, provided that it has a tendency toward excess of exports, and is $\beta>1$, such as follows:

$$S-(\beta-1)M=V_d$$

For a national economy which has a trend of excess savings, excess of exports is essntial to form the balance. In the opposite case, that is, in case it has a tendency $S<V_d$, excess of imports is essential. Because, under the condition of $\beta<1$, it is balanced in the shape of the following form:

$$S+(1-\beta)M=V_d$$

A balance in national economy is formally explained in above form. However, it is hard to establish the condition that β has a numerical value other than 1 and that unmerical value to be stable. Because β is to be determined under the complex structure of international economy, its numerical value easily undergoes a change. National economy which has to keep excess of exports at a fixed rate owing to excess savings is unable to attain this desirable favorable balance because of bad turns of international economic conditions. And it is easily touched by alien influences. On the other hand, national economy which has always to keep excess of imports at a fixed rate owing to insufficient savings, is placed in a unstable situation by foreign conditions. To stablize the economy, it is desirable to realize a growth of national economy conditioned upon the balance of trade. As the Japanese economy has a tendency $S<V_d$, excess of imports is desirable to realize the balance. However, trade policy has never been framed for the aim of unfavorable balance, but has been adopted to adjust the growth rate of economy to get rid of the unfavorable balance. For it must have been considered that the balance conditional upon excess of imports at the fixed rate was unstable.

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[1] This is a English translation of the Chapter II of my book, *Economic Aanalysis of Japanese Foreign Trade*, Tokyo 1959, in Japanese.

It is the essential condition for the steady growth of national economy to maintain the balance of trade. The necessary condition to maintain the balance of trade in the dynamic process of economy is established, if the trade was balanced at the initial condition, by uniformity of the increase rate of subsequent imports and exports. This is expressed in the following equation:

Assuming $X_0=M_0$

It is expressed as $G_x=G_m$ (1. 1)

G_x and G_m show the increase rate of exports and imports respectively. In this case, however, both increase rates should be expressed by the same unit of value, such as the standard export price. If G_x and G_m are expressed by the increase rate of each quantity, the equation should be as follows:

$$G_x \pm G_t = G_m \tag{1. 2}$$

G_t means the rate of variation in the terms of trade t. But, as the first approximation, G_t is from now on disregarded in this section. This ,however, will be corrected later. If the import function is given with a equation such as

$$\log M = \eta_m \log Y_d + \alpha' \tag{1. 3}$$

using the domestic national income, Y_d, as the explanatory variable, the increase rate of the total import is explained by the rate of growth of domestic income. G_d:

$$G_m = G_m(G_d) \tag{1. 4}$$

Accordingly, the equation (1. 1) becomes

$$G_x = G_m(G_d) \tag{1. 5}$$

This corresponds to

$$\log Y = k \log X + \alpha$$

Increase of national income is determined by expansion of exports. If exports can be politically adjusted, growth of national income must be also settled to cope with it. Exports, however, cannot always politically be adjusted with ease. In the international economic structure, exports are woven unto the net work of inter-dependence. The strategic variable explaining export behavior must be selected from that interwoven net. The formula which most easily suggests itself to our mind as the export behavior equation is, for example,

$$\log X = \eta_f \log Y_f + \alpha'' \tag{1. 6}$$

using income of foreign economy, Y_f, as the explanatory variable. Therefore, the increase rate of exports is formulated as the function of the rate of growth in foreign economy:

$$G_x = G_x(G_f) \tag{1. 7}$$

Under this condition the equation (1. 5) is rewritten as

$$G_x(G_f)=G_m(G_d) \qquad (1.\ 8)$$

This becomes the conditional formula which settles the equilibrium rate of growth, $\hat{G}_d$, in domestic economy. From the import and export behavior equation, they become $G_m=\eta_m G_d$ and $G_x=\eta_f G_f$ respectively; and the equilibrium rate of growth corresponding to the balance of trade becomes $\hat{G}_d=[\eta_f/\eta_m]G_f$. By being rewritten, it is formed as

$$\hat{G}_d=\mu G_f \qquad (1.\ 9)$$

μ is tentatively called hereafter the coefficient of comparative growth. It is nothing but the ratio of elasticity coefficients of export and import. This expresses the thesis that the equilibrium rate of growth of domestic national economy is determined by the rate of growth of foreign economy. This means that if the actual rate of growth of national economy is higher than that equilibrium rate, it causes excess of imports, and if contrarily lower, it leads to excess of exports. In the following, this conditional formula is applied to Japanese economy.

In applying this, we encounter the question of what the rate of growth of foreign economy is expressed by. So long as reliable data of national income of all the nations of the world cannot be obtained, the equation (1. 6) cannot be applied just as it is. Two short cut methods are used in this paper: One is to use the trend of production in the mining and manufacturing industries of the world instead of the growth rate of the world income. The other is to use the growth rate of the total international trade as the explanatory variable. Both are only approximation. At first, the analysis is made of the post-war period.

Table (1.1) shows production index of the world mining and manufacturing industry, Z_f, and the index of Japanese total export, X_d, for the period from 1950 to 1956, formulated by taking 1952 to be 100.0. An alyzing the correlation between indicated figures, we obtain the result as follows:

Table (1. 1) *Analysis of Export Behavior 1950–1956*

index numbers base year: 1952

	exports log X_d	world production log Z_f	world trade log M_t	domestic production log Z_d
1950	1.9267	1.9558	1.9563	1.8059
1951	1.9741	1.9905	2.0046	1.9532
1952	2.0000	2.0000	2.0000	2.0000
1953	2.0352	2.0315	2.0268	2.0954
1954	2.1598	2.0315	2.0480	2.1321
1955	2.2751	2.0729	2.0837	2.1695
1956	2.3527	2.0922	2.1203	2.2591

X_d is estimated by Japanese Ministry of Finance, Z_f and M_f by United Nations, Z_d by Japanese Economic Planning Board.

$$\log X_d=3.25\log Z_f-4.4776 \qquad (1.\ 6,\ 1)$$

$$r^2=0.9265, \quad r=0.9626$$

Export elasticity coefficient is 3.25. Table (1. 2) shows the index of Japanese national income, Y_d, and index of the total import, M_d, for the same period. By analyzing it, it becomes as follows:

$$\log M_d = 2.3095 \log Y_d - 2.6057 \qquad (1.\ 3,\ 1).$$
$$r^2 = 0.9739 \qquad r = 0.9869$$

Import elasticity coefficient is 2.31. The conditional formula maintaining the balance of trade is obtained by combining these two equations. It becomes as follows:

From $2.31\hat{G}_d = 3.25\,G_f$,
it is formed as $\hat{G}_d = 1.406\,G_f$ (1. 9, 1)

Production of the world mining and manifacturing industry, however, was increasing with the average annual rate of 5.4% during the period. By inserting this numerical value into the above formula, the equilibrium rate of growth of the Japanese economy becomes 7.56%. If national income in Japan will expand at the rate greater than 7.56%, the rate of growth in imports becomes larger than of exports. Consequently, the balance of trade becomes adverse. As the rate of growth of Japanese national income during that period was 8.2% in average, it can be said that Japan had a tendency to increase the unfavorable balance.

If the index of the world trade, M_f, during that period is taken as the explanatory variable of the exports behavior equation. the result of correlation analysis is as follows:

Table (1. 2) *Analysis of Import Behavior 1950–1956*

index numbers base year: 1952

	imports log M_d	real nalt. income log Y_d
1950	1.7862	1.9189
1951	1.9566	1.9605
1952	2.0000	2.0000
1953	2.1314	2.0327
1954	2.1468	2.0420
1955	2.1686	2.0819
1956	2.2723	2.1236

M_d is estimated by Japanese Ministry of Finance and Y_d by Japanese Economic Planning Board.

$$\log X_d = 2.814 \log M_f - 3.6209 \qquad (1.\ 6,\ 2)$$
$$r^2 = 0.9285 \qquad r = 0.9686$$

Export elasticity coefficient is 2. 8. The condition necessary to maintain the balance of trade is obtained by combining this export elasticity coefficient with that of import already mentioned. That is

$2.309\,\hat{G}_d = 2.814\,G_f$
therefore, $\hat{G}_d = 1.218\,G_f$ (1.9.2).

As the average annual rate of growth of the world trade in the same period was 6.5%, the equilibrium rate of growth of Japanese national income is 7.971%. This a little higher than the preceding estimated value. Although both corrlation coefficients are considerably high, difference of this degree are inevitable, for it is a matter of course that there are errors in estimation. It is, anyway, certain that a rate of growth more than 8% of national income is apt to cause an excess of imports. As a matter of fact, exports during the period increased at an average annual rate of 17.8%, while imports increased at a rate of 20.6%.

Business recessions experienced twice in post-war years in Japan occurred as reactions of the excessive growth of Japanese economy, which bumped into "the wall of international payment", and caused heavy deficits in that balance. Morever, both occurred in a period during which a government tight money policy was carried out. The fact that the relation which excessive growth of economy bears to intensifying an excess imports was emphasized as the basis of the policy is still fresh in our memory. It seems that what is analyzed here supports this political idea. The coefficient of comparative growth μ, mentioned above, gives an effective key to judge the propriety of rate of growth of national economy.

Rates of growth of economy in Britain in the 19th Century and in the United States of America in the 20 th Century were higher than those of other countries. For all that they showed a remarkable excess of exports, it must not be concluded that this analysis is not appropriate. It merely shows that the coefficient of comparative growth, μ, was large in both countries. This coefficient consisted of the ratio of elasticity coefficients of import and export. In case the elasticity coefficient of export is larger than that of import, the coefficient becomes higher. Thus, even though the rate of growth of national economy is high, an excess of exports can be made.

It is well-known that, reflecting on Britain's experience in the 19th Century, R.F. Harrod stated that a high rate of growth does not always develop a tendency to unfavorable balance.[2] He tried to elucidate the relation between rate of growth and the balance of trade by the doctrine of comparative costs. His claim was that: In case the high rate of growth is chiefly supported by a industry which has a comparative advantage in the cost of production—it may be briefly called an export industry—it causes, at the same time, a marked expansion of exports. It must, therefore, be able to bring about an excess of exports. It may be said that when this theory is compared with the above analysis of ours, it is critical of the latter. However, it is yet insufficient to negate the validity of the analysis completely. Because even in such examples that seem not to be applicable to this analysis at first sight, with the interpretation that it formed a high coefficient of comparative growth by making the export elasticity coefficient large, the analysis is able to escape from criticsm by this theory. Yet, the analysis (this will be hereafter called the "A" formula for short) and the theory are not constructed from a similar approach, for they hold a completely different opinion from each other about the export function.

In the "A" formula, the behavior of export is interpreted by the trend of foreign economy. On the other hand, it is understood that in the Harrod theory it is setteled by the trend of the export industry. The former is passive, while the latter is active. It may be an issue to be discussed which is right. For my opinion, it is more important to coordinate the two. For prepartion of the coordination, it is necessary to formulate the Harrod theory or its basic doctrine of comartive costs into a formula which is easily compared with the analysis now mentioned. In the following, the formulation will be made: the following formula is derived from the Harrod theory as the export function:

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[2] R. F. Harrod, *Towards a Dynamic Economics*, London 1948, pp. 108∼109.

$$\log X=\eta_z \log Z_d+\alpha'' \qquad (1.\ 3)$$

Z_d shows production quantities of the domestic export industry. By uniting this formula with the import function, the condition maintaining the balance of trade becomes $G_x(G_z)=G_m(G_d)$, where G_z is the rate of growth in the export industry. By expanding this formula,

$$\eta_z G_z=\eta_m G_d \qquad (1.\ 11)$$

is derived. From it, the equilibrium rate of growth in the export industry is formed as

$$\hat{G}_z=[\eta_m/\eta_z]\,G_d.$$

Abbreviated, it is rewritten as

$$\hat{G}_z=\lambda G_d.$$

λ shows the tilting coefficient. If the growth of national economy puts a greater emphasis than this coefficient into the export industry, an excess of exports occurs. In the converse case, it is apt to cause an excess of imports. The Harrod theory can probably be generalized by being formulated like this. Hereinafter, the theory is called the "B" formula.

In the following, the "B" formula will be applied to the Japanese economy: Analyzing the Japanese economy for the period 1950-1956, the export behavior is measured as follows:

$$\log X=0.975\log Z_d+0.0938 \qquad (1.\ 10,\ 1)$$

$$r^2=0.8337 \qquad r=0.9131$$

However, the manufacturing industry is considered here as the export industry. (cf. Table (1. 1)) By uniting this with the above-mentioned formula of import function (1.1, 1), the condition maintaining the balance of trade becomes as follows:

$$0.975\,\hat{G}_z=2.3095\,G_d$$

$$\text{Accordingly,}\quad \hat{G}_z=2.366G_d$$

The tilting coefficient is 2.366. If the rate of production increase in the export industry is smaller than 2.366 times the rate of growth of national income, it must have a tendency to an unfavorable balance. As the average annual rate of growth in national income in this period was 8.2%, the rate of production increase in the export industry which is essential to maintain the balance of trade was 19.4% where, as a matter of fact, its average actual rate was 19.0%

According to this analysis, it can be said that, contrary to the previous one, an excess of imports was made due to the fact that the growth of national income was not made to the export industry with sufficient emphasis of weights. The necessary policy to maintain the balance of trade is not to control import by restraining the growth rate of national income, but to expand export by promoting the development of the export industry. The positive policy is much more desirable than the passive. Thus opinions which are contrary to each other are derived as political proposals. On the other hand, the theoretical analysis is as if both of them were looking only on one side of the shield.

An analysis of Japanese economy in per-war days will now be described. For the "A" formula, data of production index numbers of the world mining and manufacturing industry and index numbers of the world trade, which had been collected over a long time, have not yet put in order. So, the analysis is made with data in two limited periods—from 1920 to 1929 and from 1928 to 1937. The following is the analysis between 1920 and 1929:

Instead of index numbers of the world income, those of manufacturing production were applied. The behavior of Japanese export was analyzed according to the index of the world manufacturing production as the explanatory variable:

$$\log X = 1.1873 \log Z_f - 0.3774 \qquad (1.\ 6,\ 3)$$

$$r^2 = 0.8688$$

The export elasticity coefficient is 1.1873. The behavior of the Japanese import is explained by the index of national income as the explanatory variable:

$$\log M = 0.5956 \log Y_d + 0.8741 \qquad (1.\ 3,\ 2)$$

$$r^2 = 0.7308$$

As the import elasticity coefficient is 0.5956, the appropriate rate of growth corresponding to the balance of trade is shown by $\hat{G}_d = 1.9934\, G_f$. (cf. the Table 1.3).

The period between 1928 and 1937 was a time of upheaval involving a state of the Great Depression and the recovery from it. Amidst the worldwide depression, Japanese trade expanded with a low ecxhange rate of yen as its lever, and

Table (1. 3) *Analysis of Export and Import Behaviors 1920–1929*

Index numbers base year: 1928

	exports $\log X$	world production $\log Z_f$	imports $\log M$	real natl. income $\log Y_d$
1920	1.7681	1.8179	1.8140	1.6870
1921	1.7411	1.7575	1.8378	1.7610
1922	1.8667	1.8464	1.9308	1.7751
1923	1.7423	1.8675	1.9246	1.7952
1924	1.8520	1.8936	1.9662	1.8174
1925	1.9356	1.9302	1.9620	1.8387
1926	1.9423	1.9505	1.9994	1.8833
1927	1.9769	1.9770	2.0231	1.9004
1928	2.0000	2.0000	2.0000	2.0000
1929	2.0472	2.0340	2.0134	2.0107

X and M are estimated by Toyo Keizai Shimpo Sha (Oriental Economist Co.), Z_f by League of Nations, Y_d by Hitotsubashi Keizai Kenkyujo (Hitotsubashi Economic Research Institute).

helped the national economy to recover from the depression. The reason why the expansion of exports was made cannot be sufficiently explained merely by the behavior of world economy. It seems that Japanese trade policy was a powerful factor in its expansion. Therefore, this period is not suitable for the "A" formula to be applied. Between Japnese total export and the world manufacturing production, only the following weak correlation can be seen:

$$\log X = 0.9539 \log Z_f + 0.2014 \qquad (1.\ 6,\ 4)$$
$$r^2 = 0.4794$$

Again, between the Japanese exports and the world trade, there is as abnormal relation like a negative correlation. This shows that the world trade is not the proper factor to interpret the behavior of demand for Japanese exports. In addition, between import demand and national income in Japan, there was only a weak correlation, which is not significant from the statistical point of view (cf. Table 1. 4):

$$\log M = 0.6562 \log Y_d + 0.6571 \qquad (1.\ 3,\ 3)$$
$$r^2 = 0.5104$$

The following is the application of the "B" formula: As only domestic data are necessary, the formula is easily applied. The analysis over a long period is made with this description.

The period from 1878 to 1932 is divided into ten parts. The index number of exports and that of production in the manufacturing industry, and also that of imports and that of real national income are shown in the Table (1. 5). Now the figures will be analyzed in the following. As the export equation, the following is obtained:

$$\log X = 0.9637 \log Z_d - 0.0525 \qquad (1.\ 12,\ 2)$$
$$r^2 = 0.9898 \qquad r = 0.9944$$

Table (1. 4) *Analysis of Export and Import Behaviors 1928–1937*

Index numbers base year: 1928

	exports log X	world production log Z_f	imports log M	real natl. income log Y
1928	2.0000	2.0000	2.0000	2.0000
1929	2.0472	2.0340	2.0134	2.0107
1930	1.9956	1.9867	1.9534	2.0704
1931	2.0093	1.9366	2.0057	2.1099
1932	2.0701	1.8832	1.9968	2.1082
1933	2.0939	1.9336	2.0231	2.1068
1934	2.1623	1.9832	2.0576	2.1202
1935	2.2176	2.0375	2.0677	2.1519
1936	2.2555	2.0986	2.1082	2.1769
1937	2.2730	2.1402	2.1350	2.1601

X and M are estimated by Toyo Keizai Shimpo Sha and Yokohama Specie Bank, Z_f by League of Nations, Y_d by Hitotsubashi Keizai Kenkyujo.

As the import equation, the following is derived:

$$\log M = 1.5371 \log Y_d - 1.1158 \qquad (1.\ 3,\ 5)$$
$$r^2 = 0.9755 \qquad r = 0.9877$$

Table (1. 5) *Analysis of Export and Import Behaviors 1978–1932*

Index numbers base year: 1931

	exports $\log X$	domestic production $\log Z_d$	imports $\log M$	real natl. income $\log Y_d$
1878—1887	1.0319	1.1476	1.0216	1.4464
1883—1892	1.2130	1.3189	1.1979	1.5364
1888—1897	1.3615	1.4955	1.4239	1.6402
1893—1902	1.5023	1.6500	1.6105	1.7530
1898—1907	1.6544	1.7346	1.7676	1.8179
1903—1912	1.7881	1.8506	1.8504	1.8820
1908—1917	1.9742	2.0252	1.9102	1.9583
1913—1922	2.0785	2.2004	2.0386	2.0444
1918—1927	2.1253	2.3013	2.1897	2.1513
1923—1932	2.2314	2.4211	2.2645	2.2683

X and M are estimated by Toyo Keizai Shimpo Sha, Z_d by former Nagoya Commercial College, Y by Hitotsubashi Keizai Kenkyujo.

The condition maintaining the balance of trade is as follows:

$$0.9637\,\hat{G}_z = 1.5371\,G_d$$

Then, the following is derived:

$$\hat{G}_z = 1.54\,G_d \qquad (1.\ 12,\ 2)$$

The tilting coefficient is 1.54. The average annual rate of growth in national income during period was 4.30%. Therefore, the required rate of production increase in the export industry is to be 6.93%, where it was actually 6.73%. That is, it was a little lower than the required one. While the average rate of increase of import during the period was 6.57%, that of export was practically 5.89%, which is considerably lower than the former. There was an obvious tendency to an unfavorable balance of trade.

The fact that the rate of growth of Japanese economy was remarkably higher over a long period than that of any other country is now a matter of common knowledge. Nonetheless, what differs from Britain in the 19th Century and the United States of America in the 20th Century is that Japan had a tendency to an unifavorable balance of trade. This cannot be interpreted by the Harrod theory of comparative costs. The high rate of growth in the Japanese economy was mainly supported by the export industry, so that the condition of the favorable balance described in the Harrod theory was fully exemplified. However, an excess of imports occurred. By generalizing the theory of comparative costs in our revised form, this Japanese instance can be explained. But, we do not claim that the "B" formula is a theory having already sufficient generality. In order to generalize it further, it is necessary to coordinate the relation between this "B" formula and the abovementioned "A" formula.

II. *Balance of Trade and Terms of Trade*

The problem in this section is to coordinate the relation between two formulas —"A" and "B" formulas. Both formulas follow the same method to obtain import equation. However, they differ in obtaining the export one. In the "A" formula, export equation makes the movement of income in foreign economy the important explanatory variable. Accordingly, it has the interpretation that the balance of trade is determined by reciprocal demands between one country and others. It may be safely said that it is connected to the reciprocal demands theory in its fundamental view, while the "B" formula take the movement of export industry as the explanatory variable of export behavior, and relates to the theory of compartive costs as mentioned before.

In this way, it is easily understood that coordination of these two formulas can be done by re-examining the relation between these two theories. Far back in the mid–19 Century it was already made clear by John S. Mill (1806–73) that both theories have the relation of complementing each other. The theory of international equilibrium propounded afterwards is accomplished by making itself more elaborately along the lines of Mill's proposal. Therefore, the problem is not a new one. However, the two formulas mentioned above are considerably different from that of reciprocal demands and that of compartive costs in their analytical contents, so that the difference of contents must be examined.

The theory of reciprocal demands is as follows:
Export in Japan, X_d, is in other word import in foreign countries, M_f. Thus, the balance of trade is as follows:

$$M_f=M_d \qquad (2.\ 1)$$

It was interpreted that import demands in a country and the other were functions which made the terms of trade the pricnipal explanatory variable respectively:

$$M_f=M_f(t) \qquad (2.\ 2)$$
$$M_d=M_d(t)$$

In this way, the equilibrium of reciprocal demands was thought to be established by making the terms of trade the adjusting variable:

$$M_f(t)=M_d(t) \qquad (2.\ 3)$$

The equilibrium terms of trade were assumed to be more profitable than the price ratio which would have been settled by domestic costs of production in each nation. The foreign trade stimulated by the difference in comparative costs between the countries reaches the balance of trade under these equilibrium terms of trade. Then the gains from trade are divided between each country under the same terms. This is the core of Mill's doctrine. The theory of international equilibrium held fundamentally the same view which the former held until comparatively recent years.

The biggest defect in this theory seems it was formed on the method of economic statics. The equilibrium shown in the formula (2. 3) is only formed on the assumption that the reciprocal demand curve in each country does not shift. The theory of comparative costs is the dynamic theory in its foundation: each country puts emphasis on the export industry from the standpoint of comparative advantage and reorganizes its industrial structure, then places it in the system of international specilization and fosters its economic development. This is the consistent conviction in the latter. This dynamic idea cannot directly be united with the statical theory of the former. In this way, the gap develops between the vision and the analytical framework. In order to fill up the gap, the variable settling the shift of the demand curve must be adapted to the formula of the balance of trade in a clear statement. The revision of the analytical framework must be accomplished.

The above-mentioned "A" formula made the formulation of the function of reciprocal demands by making shift variable only an explanatory variable. Assuming that:

$$\begin{aligned} M_f&=M_f(Y_f) \\ M_d&=M_d(Y_d) \end{aligned} \tag{2. 4}$$

The balance of trade was expressed in the following form:

$$M_f(Y_f)=M_d(Y_d) \tag{2. 5}$$

By uniting this with the theory of reciprocal demands, the function of reciprocal demands is as follows:

$$\begin{aligned} M_f&=M_f(t, Y_f) \\ M_d&=M_d(t, Y_f) \end{aligned} \tag{2. 6}$$

The balance of trade is formed as follows:

$$M_f(t, Y_f)=M_d(t, Y_d) \tag{2. 7}$$

As shown above, by applying the shift variable of the reciprocal demand curve into the formula specifically, the gap between the static equilibrium analysis and dynamic theory of comparative costs can be reduced. From the standpoint of adjustment of the "A" formula, by adding the terms of trade as the explanatory variable, the "A" formula approaches a step toward the theory of comparative costs, accordingly toward the "B" formula.

With the same reason, the latter can approach the former in the following way. The necessary adjustment is as follows: The export function becomes:

$$X_d=X_d(t, Z_d) \tag{2. 8}$$

As the above mentioned import function can be used without any change, the balance of trade becomes as follows:

$$X_d(t, Z_d)=M_d(t, Y_d) \tag{2. 9}$$

In this way, the "B" formula approaches the "A" formula. Of course, by this adjustment, the difference of basic idea existing between the two formulas is not always wiped away perfectly. Yet the "A" formula propounds the passive view about exports while the "B" propounds the active. However, so long as the statistical survey is continued with observable data, it might not be very difficult to reconcile the difference of opinions between the two. If the difference of opinions is taken up as they are without considering this survey, there is no room to reconcile it. Following the previous section, the statistical analysis for Japanese trade will be carried out in the following. It is a matter of course that both revised formulas are statistically applied closely, and the results of measurements are compared and examined. Now both formulas must be expanded into applicable forms. For the sake of convenience, the "B" formula will be explained first. The import equation is mainly formed as follows:

$$\log M = e_m \log t + \eta_m \log Y_d + \alpha \tag{2. 10}$$

Also the export equation in the "B" formula is supposed as follows:

$$\log X = -e_x \log t + \eta_z \log Z_d + \alpha' \tag{2. 11}$$

Under this supposition, if the rate of variation in the terms of trade is G_t, the rate of growth of the import value at the export price base is as follows:

$$G_m = (e_m - 1)G_t + \eta_m G_d \tag{2. 12}$$

The rate of growth of the export value at the same base is as follows:

$$G_x = -e_x G_t + \eta_z G_z \tag{2. 13}$$

The condition required to maintain the balance of trade in the dynamic process is, if it was balanced at the initial stage, as follows:

$$\eta_z G_z = (e_m + e_x - 1)G_t + \eta_m G_d \tag{2. 14}$$

If the left side of the above equation is larger than the right, it means an excess of exports. Oppositely, it means an excess of imports. Comparing this equation with the balance equation which was expanded in the previous section (1. 11), $\eta_z G_z = \eta_m G_d$, two pieces of impormation are obtained: One is that: In cases where the rate of production increase in the export industry is relativeley higher than that of growth in national income, if it does not accompany any improvement of productivity of the export industry and causes the relative rise of export price, it might bring an unfavorable balance of trade through the action of the terms of trade, even if it becomes $\eta_z G_z \geq \eta_m G_m$. On the countrary, if the improvement of productivity of that industry is sufficient, it has the possibility of preserving the favorable balance by making comparatively cheap the export price, even though it becomes $\eta_z G_z \leq \eta_m G_d$. The other is that: The sum of price elasticity coefficients of imports and exports has to be larger than I to realize the above-mentioned possibility. If it is $e_m + e_x < 1$, the balance of trade enters into unfavorable condition by deterioration of the terms of trade. Therefore, $e_m + e_x = 1$ is, as it were, the critical point. This was explained by J. Robinson.[3]

These two pieces of information probably play an important part in the study of the problem of the balance of trade. However, in case of statistical measurement, attention must be previously paid to the fact that price elasticity of import and export, e_m and e_x, is apt to contain considerable errors of estimation, and there are not a few occaions when useful judgments can hardly be made at all.

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[3] Joan Robinson, *Essays in the Theory of Employment*, Oxford 1947, pp. 142–3.

It means that, at the time of application of import and export functions, the scheme obtaining as significant results of statistical analysis as possible must be made by modifying functional forms.

The export equation in the "A" formula is shown below:

$$\log X = -e_x \log t + \eta_x \log Y_f + \alpha'' \qquad (2.\ 15)$$

The condition required to maintain the balance of trade are:

$$\eta_x G_f = (e_m + e_x - 1) G_t + \eta_m G_d \qquad (2.\ 16)$$

The equation similar to this was already expanded by G. H. Johnson.[4] The meaning of his equation is the same as the equation (2. 16) of ours. With these preparations, I hope the measurement can easily be accomplished.

Analysis for the post-war days will be made in the following: in a period from 1950 to 1956, the import equation is:

$$\log M = 0.4942\, t + 2.0859 \log Y_d - 2.8045 \qquad (2.\ 10,\ 1)$$

$$R^2 = 0.9892 \qquad (cf.\ \text{the Table 2. 1})$$

The income elasticity coefficient of import in the equation mentioned before (1. 3, 1) is 2.3095. In this equation containing the terms of trade as an additional explanatory variable, the value is 2.0859, a little lower than the former. The price elasticity coefficient of import is easily measured from parameter 0.4942 which is affected by the terms of trade. Its average elasticity coefficient is 1.1208. In import, the income elasticity is 2.0895, and the price elasticity is 1.1208. It is understood that import demand is considerably elastic. These parameters contain estimated errors, which must be examined. Errors in the price elasticity are greater than that of income. However, both values are, anyhow, statistically significant. That is:

the income elasticity	2.0859 ± 0.1626
the price elasticity	1.1208 ± 0.5299

In export, according to the "A" formula, two methods of measurment are made; one is the method using the index number of production of the world mining and

Table (2. 1) *Analysis of Import Behavior 1950–1956*

index numbers base year: 1952

	imports log M	termes of trade t	real natl. income log Y_d
1950	1.7862	0.9701	1.9189
1951	1.9566	1.0986	1.9605
1952	2.0000	1.0000	2.0000
1953	2.1314	1.0515	2.0327
1954	2.1468	1.0533	2.0420
1955	2.1686	1.0497	2.0819
1956	2.2723	1.1158	2.1236

M and t are estimated by Japanese Ministry of Finance, Y by Japanese Economic Planning Board.

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[4] H. G. Johnson, "Increasing Productivity, Income and Price Trends, and the Trade Balance" *Economic Journal*, Sept. 1954.

manufacturing industry instead of the world income, and the other is to use the index number of the world trade. In the former method, the statistical equation explaining the export behavior is as follows:

$$\log X = -0.1893\,t + 3.3825 \log Z_f - 4.5474 \qquad (2.\ 15,\ 1)$$

$$R^2 = 0.9245$$

In the latter, the result is:

$$\log X = -0.5643\,t + 3.1156 \log M_f - 3.6428 \qquad (2.\ 15,\ 2)$$

$$R^2 = 0.9416$$

(*cf.* the Table 2. 2)

Parameters affected by the terms of trade must theoretically be equivalent to each other. However, they are unequal in the above measurements. Estimated errors between the two are markedly great. Each elasticity coefficient taking estimated errors into consideration is as follows:

The elasticity coefficient related to production in the world mining and manufacturing industry	3.3825±0.6661
The elasticity coefficient related to the world total trade	3.1156±0.5187
The price elasticity coefficient (1)	−0.4569±1.4449
The price elasticity coefficient (2)	−1.3621±1.3780

As indicated above, errors in price elasticity coefficients are great. Therefore, these values are not significant.

According to the "B" formula, the export behavior equation is as follows:

$$\log X = -0.1864\,t + 1.0280 \log Z_d + 0.1817 \qquad (2.\ 11,\ 1)$$

$$R^2 = 0.8358$$

The price elasticity coefficient in the above equation has also a large error. Two elasicity coefficients and their errors are as follows:

The elasticity coefficient related to the export industry	1.0280±0.3201
The price elasticity coefficient	−0.4499±2.2625

Though the former is anyhow, the latter is not significant (cf. the Table 2. 2).

As described above, even the revision of "A" and "B" formulas is tried by adding the terms of trade to them as additional explanatory variables, and the compartive study of both formulas is also attempted, it is impossible to obtain the meaningful results from data in post-war days. Each export behavior equa-

Table (2. 2) *Analysis of Export Behavior 1950–1956*

index numbers base year: 1952

	exports log X	terms of trade t	world production log Z_f	world trade log M_f	domestic production log Z_d
1950	1.9267	0.9701	1.9558	1.9563	1.8059
1951	1.9741	1.0986	1.9905	2.0046	1.9532
1952	2.0000	1.0000	2.0000	2.0000	2.0000
1953	2.0352	1.0515	2.0315	2.0268	2.0954
1954	2.1598	1.0533	2.0315	2.0480	2.1321
1955	2.2751	1.0497	2.0729	2.0837	2.1695
1956	2.3527	1.1158	2.0922	2.1203	2.2591

X and t are estimated by Japanese Ministry of Finance, Z_f and M_f by United Nations, Z_d by Japanese Economic Planning Board.

tion itself has anyhow a considerably high coefficient of determination. However, it is dangerous to derive some economic judgement from it concerning the action of terms of trade. Useful results to supplement the analsyis in the previous section could not be obtained.

Now an analysis of pre-war years will be made in the following. Firstly, the "B" formula is applied. Analysis over a long period from 1878 to 1932 is made. The import behavior equation in this period is:

$$\log M = 0.5038\,t + 1.6955 \log Y_d - 1.9513 \qquad (2.\ 10,\ 2)$$

$$R^2 = 0.9824 \qquad (cf.\ \text{the Table 2. 3})$$

Two elasticity coefficients obtained from this are:

The income elasticity coefficient	1.6955±0.1286
The price elasticity coefficient	1.7024±0.8633

In this case, the price elasticity coefficient also has a considerably large error, but is significant at any rate.

The export behavior equation in the same period is:

$$X = -1.5195\,t + 0.9517 \log Z_d + 0.7650 \qquad (2.\ 11,\ 2)$$

$$R^2 = 0.9570$$

The average elasticity coefficients are:

The elasticity coefficient related to the export industry	0.5851±0.1118
The price elasticity coefficient	−2.5317±1.1990

The error of price elasticity coefficient is also large, but it is anyhow statistically significant. The condition required to maintain the balance of trade is:

$$0.5851\hat{G}_z = 3.2341 G_t + 1.6955 G_d$$

The average annual growth rate of national income during that period was 4.30%, and that of the terms of trade was minus 0.38%. Applying these value into the above equation, it is understood that the annual growth rate of the export industry required to maintain the balance of trade must be 10.60%. However, the actual average growth rate was 6.73%. There exists the reason why it brought

Table (2. 3) *Analysis of Import Behavior 1878–1932*

index numbers base year: 1913

	imports $\log M$	terms of trade t	real natl. income $\log Y_d$
1878—1887	1.0216	1.2441	1.4464
1883—1892	1.1979	1.2558	1.5364
1888—1897	1.4239	1.2424	1.6402
1893—1902	1.6105	1.2550	1.7530
1898—1907	1.7676	1.2980	1.8179
1903—1912	1.8504	1.2537	1.8820
1908—1917	1.9102	1.0736	1.9583
1913—1922	2.0386	1.0138	2.0444
1918—1927	2.1897	1.0847	2.1513
1923—1932	2.2645	1.0478	2.2683

M and *t* are estimated by Toyo Keizai Shimpo Sha, *Y* by Hitotsubashi Keizai Kenkyujo.

Table (2. 4) *Analysis of Export Behavior 1878–1932*

index numbers base year: 1913

	exports X	terms of trade t	domestic production $\log Z_d$
1878—1887	0.1076	1.2441	1.1476
1883—1892	0.1636	1.2558	1.3189
1888—1897	0.2299	1.2424	1.4955
1893—1902	0.3179	1.2550	1.6500
1898—1907	0.4512	1.2980	1.7346
1903—1912	0.6138	1.2537	1.8506
1908—1917	0.9423	1.0736	2.0252
1913—1922	1.1979	1.0138	2.2004
1918—1927	1.3346	1.0847	2.3013
1923—1932	1.7042	1.0478	2.4211

X and t are estimated by Toyo Keizai Shimpo Sha, Z_d by former Nagoya Commercial College.

about an excess of imports. From the other point of view, where the increasing rate was 6.73%, an effort must still be taken to lower, still more, the terms of trade by improving the productivity to maintain the balance of trade. It may also be safely said that the necessary lowering rate of terms of trade had to be 1.03%, which is far larger than the actual lowering rate, 0.38%.

Secondly, an analysis of the period from 1894 to 1915 will be made in the following:

The import behavior equation is obtained analyzing figures indicated in the Table (2. 5):

$$\log M = 0.4477t + 1.8112 \log Y_d - 2.117 \qquad (2.\ 10,\ 3)$$

$$R^2 = 0.9863$$

The export behavior equation is obtained by analyzing that of Table (2. 6):

$$\log X = -0.3049t + 0.7302 \log Z_d + 0.8150 \qquad (2.\ 11,\ 3)$$

$$R^2 = 0.7054$$

Elasticity coefficients concerned are:

income elasticity coefficient of import	1.8112±0.0558
elasticity coefficient of export related to the export industry	0.7302±0.1669
price elasticity of import	1.2589±0.1133
price elasticity of export	−0.8573±0.6598

The price elasticity coefficient of export has a large error. The condition required maintain the balance of trade are:

$$0.7302\, G_z \doteqdot 0.5875\, G_t + 1.8112\, G_d$$

During this period, national income increased by the average annual rate of 3.50%, and the terms of trade decreased by that of 1.23%. Therefore, the growth rate of production in the export industry which is asked to maintain the balance of trade should be 7.84%. This required rate of 7.84% higher than the actual rate of 7.02%. If the adjustment is made in the terms of trade, supposing that this actual rate of 7.02% was maintained, the terms of trade must decrease by the

Table (2. 5) *Analysis of Import Behavior 1894–1915*

index numbers base year: 1913

	imports log M	terms of trade t	real natl. income log Y_d
1894—1896	1.4893	1.2365	1.7043
1895—1897	1.5676	1.2557	1.7040
1896—1898	1.6662	1.2601	1.7373
1897—1899	1.6888	1.2906	1.7670
1898—1900	1.6994	1.3032	1.7933
1899—1901	1.6581	1.2323	1.8020
1900—1902	1.6752	1.1935	1.8090
1901—1903	1.6978	1.2150	1.8215
1902—1904	1.7452	1.2511	1.8191
1903—1905	1.8147	1.2832	1.8129
1904—1906	1.8387	1.3161	1.8161
1905—1907	1.8714	1.3960	1.8309
1906—1908	1.8412	1.3941	1.8719
1907—1909	1.8451	1.3592	1.8900
1908—1910	1.8381	1.2345	1.8924
1909—1911	1.8533	1.1527	1.9114
1910—1912	1.8919	1.0590	1.9417
1911—1913	1.9362	1.0300	1.9810
1912—1914	1.9552	0.9842	1.9934
1913—1915	1.9451	0.9804	1.9882

M and t are estimated by Toyo Keizai Shinpo Sha, Y by Hitotsubashi Keizai Kenkyujo.

average annual rate of 2.19%.

Thirdly, in the period from 1919 to 1928 the import behavior equation is as follows (cf. Table. 2. 7):

$$\log M = 0.2037t + 0.7725 \log Y_d + 0.3010 \qquad (2.\ 10,\ 4)$$
$$R^2 = 0.7609$$

The export behavior equation is (cf. Table 2. 8):

$$\log X = -0.2751t + 0.9178 \log Z_d + 0.2884 \qquad (2.\ 11,\ 4)$$
$$R^2 = 0.8630$$

Elasticity coefficients are:

of import related to income	0.7725 ± 0.1906
of export related to the export industry	0.9178 ± 0.1612
of import related to price	0.5174 ± 0.3513
of export related to price	-0.6987 ± 0.3235

The condition required to maintain the balance of trade is:

$$0.9178\hat{G}_z = 0.2161G_t + 0.7725G_d$$

The sum of elasticity coefficients of import and export has not a significant difference from unity, taking estimated errors into consideration. It can be said that it is almost close to a critical point. However, according to the above-mentioned equation, the condition required to maintain the balance will be examined in the following.

Table (2. 6) *Analysis of Export Behavior 1894–1915*

index numbers base year: 1913

	exports log X	terms of trade t	domestic production log Z_d
1894—1896	1.4066	1.2365	1.4365
1895—1897	1.4407	1.2557	1.4932
1896—1898	1.4559	1.2601	1.5382
1897—1899	1.5189	1.2906	1.5507
1898—1900	1.5189	1.3032	1.5658
1899—1901	1.5744	1.2323	1.5729
1900—1902	1.6011	1.1935	1.6012
1901—1903	1.6644	1.2150	1.6187
1902—1904	1.6909	1.2511	1.6609
1903—1905	1.7023	1.2832	1.7127
1904—1906	1.7241	1.3161	1.7515
1905—1907	1.7254	1.3960	1.7843
1906—1908	1.7393	1.3941	1.7863
1907—1909	1.7564	1.3592	1.8056
1908—1910	1.8082	1.2345	1.8222
1909—1911	1.8491	1.1527	1.8659
1910—1912	1.8894	1.0590	1.9220
1911—1913	1.9276	1.0300	1.9660
1912—1914	1.9776	0.9842	1.9898
1913—1915	2.0189	0.9804	1.9965

Base year for index numbers is 1913
X and t are estimated by Toyo Keizai Shinpo Sha, Z_d by former Nagoya Commercial College.

Table (2. 7) *Analysis of Import Behavior 1919–1928*

index numbers base year: 1913

	imports log M	terms of trade t	real natl. income log Y_d
1919	2.1014	1.000	2.1304
1920	2.0930	0.974	2.0398
1921	2.1168	1.132	2.1138
1922	2.2098	1.287	2.1279
1923	2.2036	1.293	2.1490
1924	2.2452	1.125	2.1702
1925	2.2410	1.044	2.1915
1926	2.2784	1.083	2.2361
1927	2.3021	1.090	2.2532
1928	2.2790	1.004	2.3528

M and t are estimated by Toyo Keizai Shinpo Sha, Y by Hitotsubashi Keizai Kenkyujo.

This period involves the years from the Armistic of World War I to the Great Depression (The so-called *Showa Kyoko*, in Japanese). The wave of business fluctuation was rather strong. According to the logarithmic linear trend

Table (2. 8) *Analysis of Export Behavior 1919–1928*
index numbers base year: 1913

	exports log X	terms of trade t	domestic production log Z_d
1919	2.1052	1.000	2.2430
1920	2.0334	0.974	2.2455
1921	2.0064	1.132	2.2227
1922	2.0920	1.287	2.2967
1923	2.0076	1.293	2.3139
1924	2.1173	1.125	2.3483
1925	2.2009	1.044	2.3464
1926	2.2076	1.083	2.4232
1927	2.2422	1.090	2.4314
1928	2.2653	1.004	2.4771

X and t are estimated by Toyo Keizai Shimpo Sha, Z_d by former Nagoya Commercial College.

equations derived from the fluctusting annual national income data shows at the annual rate an increse of 6.22%, and the terms of trade shows the decrease of 0.10%. By substituting these into the above equation, the annual rate of increase in the export industry which is required to maintain the balance of trade is 5.24%. The actual increasing rate was, however, a little higher: 6.62%. Thus, it can be seen that there was a trend toward improvement of the balance of trade through the period. As a matter of fact, the trend of foreign trade was that export increased by the annual tate of 6.25%, and import increased only by that of 5.86%, even if it was converted into the export price base including the decrease of terms of trade. Therefore a 0.39% improvement of the balance of trade was made annually. Nonetheless an excess of imports was noted during the period. The unfavorable balance was made at the initial stage of the period and it was not erased in spite of the favorable trend.

Fourthly, in the period from 1928 to 1937—the period involving the Great Depresein mentioned before and its recovery—it was difficult to analyze the behavior of import and export, as was explained in a previous section. Can improvement be made in this respect by adding the terms of trade as the explanatory variable? As mentioned below, a considerable improvement was made. Yet a really satisfactory result of statistical anaylsis cannot be obtained. The import behavior equation is obtained by analyzing the data indicated in the Table (2. 9)

$$\log M = -0.4903 \log t + 0.1352 \log Y_d + 2.6922 \qquad (2.\ 10,\ 5)$$
$$R^2 = 0.7401$$

Price and income elasticity coefficients are shown with their estimated errors:

price elasticity	-0.4903 ± 0.1783
income elasticity	0.1352 ± 0.2484

Contrary to examples indicated heretofore, the income elasticity is lacking in significance. By analyzing the Table (2. 10), the following export equation is obtained:

$$\log X = -1.0624 \log t + 0.1962 \log Z_d + 3.9731 \qquad (2.\ 11,\ 5)$$
$$R^2 = 0.9282$$

Each elasticity coefficient is shown with each error:

price elaslicity	-1.0624 ± 0.5415
elasticity coefficient related to the export industry	0.1962 ± 0.4768

Each coefficient has not enough significancs. The condition required to settle the proper rate of growth in the export industry is:

$$\hat{G}_z = -2.1809 G_t + 0.6890 G_d$$

Now the "A" formula will be applied:

The adequate data are available only for the period from 1920 to 1937. In the following, analysis will be made in two separated periods 1020 through 1929 and 1928 through 1937—as was done in previous section.

Table (2. 9) *Analysis of Import Behavior 1928—1937*

index numbers base year: 1928

	imports $\log M$	terms of trade $\log t$	real natl. income $\log Y_d$
1928	2.0000	2.0000	2.0000
1929	2.0134	2.0081	2.0107
1930	1.9534	1.9778	2.0704
1931	2.0057	1.9991	2.1099
1932	1.9968	1.9476	2.1082
1933	2.0231	1.9131	2.1068
1934	2.0576	1.8598	2.1202
1935	2.0677	1.8519	2.1519
1936	2.1082	1.8383	2.1769
1937	2.1350	1.7821	2.1601

M and t are estimated by Toyo Keizai Shimpo sha and Yokohama Specie Bank, y by Hitotsubashi Keizai Kenkyujo.

Table (2. 10) *Analysis of Export Behavior 1928—1937*

index numbers base year: 1928

	exports $\log X$	terms of trade $\log t$	domestic production $\log Z_d$	world production $\log Z_f$
1928	2.0000	2.0000	2.0000	2.0000
1929	2.0472	2.0081	2.0447	2.0340
1930	1.9956	1.9778	2.0765	1.9867
1931	2.0093	1.9991	2.0848	1.9366
1932	2.0701	1.9476	2.1028	1.8832
1933	2.0939	1.9131	2.1499	1.9336
1934	2.1623	1.8598	2.2302	1.9832
1935	2.2176	1.8519	2.2939	2.0375
1936	2.2555	1.8383	2.3297	2.0986
1937	2.2730	1.7821	2.3519	2.1406

X and t are estimated by Toyo Keizai Shimpo Sha and Yokohama Specie Bank, Z_d by former Nagoya Commercial College., Z_f by League of Nations.

The period from 1920 to 1929: Analyzing the Table (2. 11) the import equation is:

$$\log M = 0.3989 \log t + 0.6495 \log Y_d - 0.0660 \qquad (2.\ 10,\ 6)$$

$$R^2 = 0.7789$$

Analyzing the Table (2. 12), the export equation:

$$\log X = -0.2584 \log t + 1.1377 \log Z_f + 0.2442 \qquad (2.\ 15,\ 2)$$

$$R^2 = 0.8769$$

Elasticity coefficients concerned are:

of the price for import	0.3989 ± 0.3018
of income for import	0.6495 ± 0.1225
of the price for export	-0.2584 ± 0.3551
of income for export	1.1377 ± 0.1717

Errors of price elasticity coefficients are as great as those of previous analysis. The condition to settle the proper rate of growth in the national economy is:

$$\hat{G}_d = 0.5276 G_t + 1.7516 G_f$$

The period from 1928 to 1937: The import equation is the same as in the "B" formula:

$$\log M = -0.4903 \log t + 0.1352 \log Y_d + 2.6922$$

$$R^2 = 0.7401$$

Analyzing the Table (2. 10), the export equation is:

$$\log X = -1.1441 \log t + 0.2291 \log Z_f + 3.8474 \qquad (2.\ 15,\ 4)$$

$$R^2 = 0.9440$$

In this equation, errors are relatively large in the income elasticity coefficient as shown below:

of the price	-1.1441 ± 0.1400
of income	0.2291 ± 0.1452

Table (2. 11) *Analysis of Import Behavior 1920—1929*

index numbers base year: 1928

	imports log M	terms of trade log t	real natl. income log Y_d
1920	1.8140	1.9869	1.6870
1921	1.8378	2.0522	1.7610
1922	1.9308	2.1079	1.7751
1923	1.9246	2.1099	1.7952
1924	1.9662	2.0494	1.8174
1925	1.9620	2.0153	1·8387
1926	1.9994	2.0329	1.8833
1927	2.0231	2.0357	1.9004
1928	2.0000	2.0000	2.0000
1929	2.0134	2.0081	2.0107

M and t are estimated by Toyo Keizai Shimpo Sha, Y by Hitotsubashi Keizai Kenkyujo.

The condition to settle the proper rate of growth in the national economy is:

$$\hat{G}_d = 2.5606\, G_t + 1.6945\, G_f$$

Table (2. 12) *Analysis of Export Behavior 1920—1929*

index numbers base year: 1928

	exports $\log X$	terms of trade $\log t$	world production $\log Z_f$
1920	1.7681	1.9869	1.8179
1921	1.7411	2.0522	1.7575
1922	1.8667	2.1079	1.8464
1923	1.7423	2.1099	1.8675
1924	1.8520	2.0494	1.8936
1925	1.9356	2.0153	1.9302
1926	1.9423	2.0329	1.9505
1927	1.9769	2.0357	1.9770
1928	2.0000	2.0000	2.0000
1929	2.0472	2.0081	2.0340

X and t are estimated by Toyo Keizai Shimpo Sha, Z_f by League of Nations.

In this period, the "A" formula obtained slightly better results than the "B" formula. However, results are not so reliable as that the proper economic judgment can be formed on the basis of it.

For the first approach to the coordination of "A" and "B" formulas, the terms of trade as the explanatory variables were added to functions of import and export behavior. There is no quetion about the import functions, for both formulas accept the same equation. However, there is a question about the export function. As the export function has different way of using the variables which explain the shift of export curve, the coordination of the two equations of different types is to be made mainly by parameters concerning the terms of trade which are held in common by both equations. If both formulas contain structual equations to determine statistically significant export behaviors, parameters concerning the terms of trade must be the same. Both formulas, as a matter of fact, have not statistically significant results as to the said parameters. Under these circumstances, it is almost impossible to examine which formula is superior as the working hypothesis for the statistical analysis. Another method has to be studied for the coordination.

III. *Model Analysis*

By coordinating "A" and "B" formulas, models are hypothetically formed. In the following, model will be verified in comparison with economic data. At first, by taking the "B" formula into the "A" formula the model "A" will be formed.

As to the export function, the equation of the "A" formula is used without change:

[The export equation] $\log X = -a \log t + b \log Z_f + h_1$ (3. 1)

Then, the relation in which the export demand brings about production of the domestic export industry will be explained by reversing the variables of export equation in the "B" formula:

[The export industry] $\log Z_d = c \log t + d \log X + h_2$ (3. 2)

As to the import function, the previous equation is used:

[The import equation] $\log M = e \log t + f \log Y_d + h_3$ (3. 3)

The equation shown the behavior of balance of trade is added:

[The behavior of banalce of trade]

$$\log M = l \log t + g \log X + h_3 \quad (3.\ 4)$$

If the trade is always balanced, it must be:

$$\log M = \log t + \log X$$

However, it is not always, in reality, balanced, and it is presumed to be like the equation (3.4). It seems that this is the necessary step to make the application of the model possible.

The model is formed with above-mentioned four equations. As their variables are six—Z_f, t, X, M, Y_d and Z_d, it is regarded that two variables out of the six are given to national economy as exogenous variables. Doubltessly, Z_f is predetermined. As the terms of trade have the marked tendency to be easily influenced by the behavior of the the world economy, it is assumed as the predetermined factor in this model. There is no way except verifying empirically whether it is proper to regard it as a predetermined one.

In this way, if Z_f and t are regarded as predetermined factors, which are determined exogenously by the tendency of the world economy, the system of simultaneous equations consisting of above-mentioned four equations contains the sufficient information which settles endogeneous variables, X, M, Y_d and Z_d. In order to solve this equations, it is required to derive the equations which explain the dispersion of each endogeneous variable by only exogeneous variables as the exlanatory variables. The following reduced froms are derived by simple algebra:

[The export demand] $\log X = -a \log t + b \log Z_f + h_1$ (3. 1)

[The export industry]

$$\log Z_d = (c - ad) \log t + bd \log Z_f + (h_1 d + h_2) \quad (3.\ 5)$$

[National income]

$$\log X = \frac{l - ag - e}{f} \log t + \frac{bg}{f} \log Z_f + \frac{gh_1 + h_4 - h_3}{f} \quad (3.\ 6)$$

[The banace of payments]

$$\log M = (l - ag) \log t + bg \log Z_f + (gh_1 + h_4) \quad (3.\ 7)$$

After applying these equation to observable data, each parameter is determined. Then the parameter of the origninal model is derived from them.

As it will be explained later, the model "A" is probably useful to make considerably clear the relation between the foreign trade and national economy, as far as Japan continues to develope her trade in line with the behaivior of the international economy without forming strong export drive policy. In short, this model is a useful working hypothesis under normal conditions.

(Post-war days). The model will be applied to the period betwen 1950 and 1956. The necessary data are described in the Tables (2. 1) and (2. 2) of the previous section.By analyzing them, the following equation are obtained:

$\log X=-0.1893t+3.3825Z_f-4.5474$ (3. 1, 1)
$R^2=0.9245$
$\log Z_d=0.2500t+2.8750\log Z_f-4.0243$ (3. 5, 1)
$R^2=0.9486$
$\log Y_d=-0.0984t+1.5189\log Z_f-0.9499$ (3. 6, 1)
$R^2=0.9922$
$\log M=0.3636t+3.0454\log Z_f-4.4819$ (3. 7, 1)
$R^2=0.9545$

From these equations, the model "A" is derived

$\log X=-0.1893t+3.3825\log Z_f-4.5474$ (3. 1, 1)
$\log Z_d=0.4108t+0.8499\log X-0.1595$ (3. 2, 1)
$\log M=0.5609t+2.0050\log Y_d-2.5780$ (3. 3, 1)
$\log M=0.5340t+0.9003\log X-0.3879$ (3. 4, 1)

The results which were solved by a simple lesat square method are as follows:

$\log Z_d=0.6413t+0.7267\log X-0.1415$ (3. 2, 1)
$R^2=0.8653$
$\log M=0.4942t+2.0859\log Y_d-2.8045$ (3. 3, 1)
$R^2=0.9892$
$\log M=0.7759t+0.7175\log X-0.2656$ (3. 4, 1)
$R^2=0.8082$

Except for equation (3. 1, 1) ,those solves by the former simultaneous equations have errors smaller than those by the latter. Nonetheless, parameters concerning the terms of trade are as yet unreliable.

(Pre-war days) Model analysis will be conducted for the period between 1920 and 1929, using the data of (2. 11) and (2. 12) Table of the previous section:

$\log X=-0.2584\log t+1.1377\log Z_f+0.2442$ (3. 1, 2)
$R^2=0.8769$
$\log Z_d=0.0797\log t+1.1052\log Z_f-0.3862$ (3. 5, 2)
$R^2=0.9621$
$\log Y_d=0.0886\log t+1.1084\log Z_f-0.4480$ (3. 6, 2)
$R^2=0.8406$
$\log M=0.5740\log t+0.8637\log Z_f-0.8711$ (3. 7, 2)
$R^2=0.9192$

From the above equations the model is:

$\log X=-0.2584\log t+1.1377\log\ -0.2442$ (3. 1, 2)
$\log Z_d=0.3307\log t+0.9714\log X-0.6234$ (3. 2, 2)
$\log M=0.5050\log t+0.7792\log Y_d-0.5302$ (3. 3, 2)
$\log M=0.7701\log t+0.7591\log X-1.0564$ (3. 3, 2)

Comparing these with the equations, derived by the simple least square method, import functions of the former and the latter are as follows:

$$\text{[The former]}\quad \log M=\underset{(0.1694)}{0.5050}\log t+\underset{(0.0686)}{0.7792}\log Y_d-0.5302$$

$$\text{[The latter]}\quad \log M=\underset{(0.3018)}{0.3989}\log t+\underset{(0.1225)}{0.6495}\log Y_d-0.0660$$

The equation of the former, on the whole, has small estimated error, and each parameter has considerably the more minor errors (as shown in parentheses). The condition settling the required rate of growth of national income which corresponds to the equilibrium between incoming and outgoing of trade becomes:

$$\hat{G}_d=0.3036G_t+1.4600G_f$$

In fact, as indicated in the equation (3. 6, 2,) the actual rate of growth was:

$$G_d=0.0886G_t+1.1084G_f$$

Therefore it may be safely said that, G_d being smaller than $\hat{G}_d$, the balance of trade tended toward improvement.

Japanese economy at that time was remarkably influenced by the world economy. The expansion of production of the world manufacturing industry was increasing the total export, manufacturing production and national income in Japan at almost the same rate as that of its own expansion. The total import was increasing at a little slower rate than that. It can be said that, for Japanese economy, it was proceeding along the normal road of economic development.

The application of the model "A" is dificult in the case of the following period —from 1928 to 1937. The results of analysis of the Table (2.9) and 2.10) are shown:

$$\log X=-1.1441\log t+0.2291\log Z_f+3.8474 \qquad (3.\ 1,\ 3)$$
$$R^2=0.9440$$
$$\log Z_d=-1.0160\log t+0.1500\log Z_f+3.7534 \qquad (3.\ 5,\ 3)$$
$$R^2=0.9561$$
$$\log Y_d=-0.7573\log t-0.2422\log Z_f+4.0389 \qquad (3.\ 6,\ 3)$$
$$R^2=0.7590$$
$$\log M=-0.4756\log t+0.2419\log Z_f+2.4635 \qquad (3.\ 7,\ 3)$$
$$R^2=0.8774$$

From them, the model is:

$$\log X=-1.1441\log t+0.2291\log Z_f+3.8474 \qquad (3.\ 1,\ 3)$$
$$\log Z_d=-0.3656\log t+0.6547\log X+1.2345 \qquad (3.\ 2,\ 3)$$
$$\log M=-1.2319\log t-0.9987\log Y_d+6.4971 \qquad (3.\ 3,\ 3)$$
$$\log M=0.7321\log t+1.0556\log X-1.5978 \qquad (3.\ 4,\ 3)$$

Where production of the export industry ought to have a positive correlation to the terms of trade, the parmeter of the terms of trade in the equation (3. 2, 3) is negative. The response of import demand to the terms of trade also ought to be positive, but it is negative (cf. the equation (3. 3, 3)). Owing to the sudden fall in exchange rate after the Depression, the terms of trade were rapidly getting worse. Responding to the expansion of export despite the decline of terms of trade, the export industry continued to increase productions. Import also increased. By analyzing this very fact, such relations as the production of the export industry and the total import increase by the decline of terms of trade are obtained, but these results are lacking in economic meaning. This shows that the hypothesis taken up in analyzing was clearly a wrong one. That is the model "A" is not proper working hypothesis to explain the movement at that time.

The hypothesis which formed the basis of the model was taken up to interpret the trend of domestic economy by production of the world manufacturing industry and the terms of trade as predetermined factors. However, under the economic situation in Japan at that time, the world manufacturing industry was unable to explain the movement of Japan's domestic economy adequately, and the terms of trade are not regarded as the predetermined factor. In the middle of the world-wide depression, Japan attempted to overcome her own domestic slump by driving export strongly, and at the same time, enduring the rapid decline of terms of trade. Defying the world-wide depression, she tried to recover her economic situation from its depression. The weapon on the occasion was the export drive. To express these circumstances, export is regarded as the exogeneous variable in the sense of the political factor. As the production of the world manufacturing industry is no longer the powerful variable to explain Japan's economic movement, but is certainly the exogenous variable from Japan's economic point of view, it is also regarded as the predetermined factor.

In the model "B", the Japan's export and the production of the world manufacturing industry are regarded exogenous variables, while the terms of trade, the import, national income and production of the export industry in Japan are regarded as endogenous variables. The structure of the model "B" is as follows:

〔the terms of trade〕 $\log t = -a \log X + b \log Z_f + h_1$ (3. 8)
〔the export industry〕 $\log Z_d = c \log t + d \log X + h_2$ (3. 9)
〔the balance of payments〕 $\log M = e \log t + f \log X + h_3$ (3. 10)
〔the trade multiplier〕 $\log Y_d = g \log X + h_4$ (3. 11)

Ther reduced fom are as follows:

$\log t = -a \log X + b \log Z_f + h_1$ (3. 8)
$\log Z_d = (d - ac) \log X + bc \log Z_f + (ch_1 + h_2)$ (3. 12)
$\log M = (f - ae) \log X + be \log Z_f + (eh_1 + h_3)$ (3. 13)
$\log Y_d = g \log X + h_4$ (3. 11)

By applying these to data in the period between 1928 and 1937:

$\log t = -0.7801 \log X + 0.1107 \log Z_f + 3.3438$ (3. 8, 1)
$R^2 = 0.9326$
$\log Z_d = 0.7857 \log X + 0.0441 \log Z_f + 0.3575$ (3. 12, 1)
$R^2 = 0.8944$
$\log M = 0.4239 \log X + 0.1388 \log Z_f + 0.8626$ (3. 13, 1)
$R^2 = 0.9261$
$\log Y_d = 0.4481 \log X + 1.1549$ (3. 11, 1)
$r^2 = 0.6530$

From these, the model is derived as follows:

$$\log t = -0.7801 \log X + 0.1107 \log Z + 3.3438 \qquad (3.\ 8,\ 1)$$

$$\log Z_d = 0.3983 \log t + 1.0964 \log X - 0.9743 \qquad (3.\ 9,\ 1)$$

$$\log M = 1.2538 \log t + 1.4119 \log X - 4.3079 \qquad (3.\ 10,\ 1)$$

$$\log Y_d = 0.4481 \log X + 1.1549 \qquad (3.\ 11,\ 1)$$

The model gives sufficient information as to the circumstances mentiond below:

(1) Japanese economy is less influenced by the world economic trend.

(2) Export drives caused the heavy decline of terms of trade.

(3) Expansion of export increased the production of the export industry at almost the same pace, and expanded national income at the rate of growth nearly half that of manufacturing production.

(4) As a result, an unequal development inside the national economy took place.

By applying this model to the period from 1920 to 1929, the equation (3. 8) which is supposed to be the most important support of this model becomes as follows:

$$\log t = -0.2402 \log X + 0.0935 Z_f + 2.3147$$

$$R^2 = 0.2090$$

The correlation in the equation is weak, and it makes the application of the model difficult.

Applied to the period between 1950 and 1956 in post-war years:

$$t = -0.5070 \log X + 2.4478 \log Z_f - 2.8417 \qquad (3.\ 8,\ 2)$$

$$R^2 = 0.7549$$

$$\log Z_d = -0.3043 \log X + 4.0567 \log Z_f - 5.5150 \qquad (3.\ 12,\ 2)$$

$$R^2 = 0.9564$$

$$\log M = -0.7042 \log X + 5.5887 \log Z_f - 8.7495 \qquad (3.\ 13,\ 2)$$

$$R^2 = 0.9852$$

$$\log Y_d = 0.4079 \log X + 1.1648 \qquad (3.\ 11,\ 2)$$

$$r^2 = 0.9261$$

The model becomes:

$$t = -0.5070 \log X + 2.4478 \log Z_f - 2.8417 \qquad (3.\ 8,\ 2)$$

$$\log Z_d = 1.6572 t + 0.5359 \log X - 0.8058 \qquad (3.\ 9,\ 2)$$

$$\log M = 2.2831 t + 0.4533 \log X - 2.2617 \qquad (3.\ 10,\ 2)$$

$$\log Y_d = 0.4079 \log X + 1.1648, \qquad (3.\ 11,\ 2)$$

Compared with the analysis done with model "A", (1) the correlation of the basic equation (3. 8) of the model "B" is weak, and (2) in the two equations (3. 9) and (3. 10) which have the same functional forms, estimated errors are great. Therefore, it seems that model "B" is inferior to the former. Except for such periods with special policy as the one form 1928 and 1937, model "B" is not always the proper hypothesis analyze the relation between foreign trade and national economy in Japan.

CHRONIC UNDEREMPLOYMENT: A COMPARISON BETWEEN JAPAN AND THE UNITED STATES[1]

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There is an opinion held by many Japanese economists that Japan's remarkably low figures for total unemployment (see Table 1) conceal a serious, chronic underemployment problem which is not found among the more advanced Western countries.[2] It is the purpose of this article to examine this contention in some detail, for, if it is correct, it suggests that economic planning must assume the prevalence of the phenomenon and work toward its mitigation perhaps with methods somewhat different from those appropriate for employment problems in countries like the United States, Great Britain, and West Germany. But if it is not correct, or fully correct, such planning may be misdirected, and, at the worst, create a new problem rather than solve an existing one.

The first part of this study will be devoted to definitional questions. The

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[1] I am greatly indebted to Professor Kazushi Ohkawa for many stimulating discussions of the problems dealt with in this article and for valuable criticisms and suggestions. I also owe thanks to Professors Masao Hisatake, Kiyoshi Kojima, Helen Walker, and Yuzo Yamada for helpful comments, and to Mr. Tsuneo Nakauchi for assistance in the collection of statistical data. The presentation of the Japanese situation has suffered from my lack of Japanese language facility which has necessitated excessive reliance on sources written in English.

[2] The following quotations illustrate this point of view as well as opinions concerning the problem's nature and magnitude, and the evidence of its existence: "Unlike in Western countries the full employment in Japan is a deceptive pyramid; the thin top layer of satisfactorily or completely employed workers is supported by the huge structure of workers who are defectively employed." Hiromi Arisawa, "Labor Force and Employment in Japan" (Mimeographed paper presented at the Conference on Industrialism and Industrial Man, January 21, 1959, Tokyo), p. 26.

"Though the ratio of the unemployed in this country is only 1% on the basis of statistical data, it should not be overlooked the [sic] latent unemployment exists in a considerable number. The survey made by the Council of Unemployment Counter-Measure in 1954 reported the existence of 5,800,000 partially employed persons. According to the Labor Force Survey in the same year of 1954 there were 9,100,000 part-time employees (with less than 34 weekly working hours), most of whom were apparently in unsatisfactory employment conditions. According to a basic survey on the structure of employment, made by the Prime Minister's Office in 1956, of 22,270,000 non-unoccupied persons 11,420,000 persons were employed in household work, and of the gainfully employed, 3,290,000 persons were seeking other jobs or additional jobs. Even though these findings as such could not be hastily taken as statistical data on latent unemployment they do suggest that a considerably large part of employed persons are under inadequate and unsatisfactory employment conditions as surplus labor force." Ministry of Finance, *General Survey of the Japanese Economy*, September 1, 1957, Tokyo, p. 41.

"Especially serious is the employment situation which has special characteristics which distinguish it from the employment problem in such countries as England, America and Germany. While we have fully employed workers and fully unemployed workers, between these two extremes there is an enormous number of workers who are underemployed in different forms in agricultural and fishing industries as well as manufacturing industries, especially small and medium-size industries. They include casual day-laborers, workers who make second section will attempt, on the basis of the limited information available, to test partially the hypothesis that Japan's underemployment problem is uniquely different qualitatively and quantitatively from that of advanced Western countries. The discussion will be confined to a limited comparison between Japan and the United States. No attempt will be made here to extend the analysis

Table 1 *Total Unemployment in Japan and the United States, 1950–1957*

Year	Number in thousands		Per Cent of Civilian Labor Force	
	U. S.	Japan	U. S.	Japan
1950	3,142	440	5.0	1.2
1951	1,879	390	3.0	1.1
1952	1,673	470	2.7	1.3
1953	1,602	450	2.5	1.5
1954	3,230	590	5.0	1.5
1955	2,654	680	4.0	1.6
1956	2,551	640	3.8	1.5
1957	2,936	530	4.3	1.2

Note: See below for comments on differences in statistical definitions of the labor force and total unemployment in Japan and the United States.

Sources: U.S. Bureau of Census; Labor Force Survey Report, Statistics Bureau, Prime Minister's Office.

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sundry goods at their homes to supplement family incomes, family workers who help with family work, extremely low-paid workers, workers who cannot make a living from their occupations without finding some income in other jobs, part-time workers and so on...our unemployment figure is roughly 600,000 at present, but the under-employment figure is estimated as high as 6,500,000." Shichiro Matsui and Etsuji Sumiya, "The Background and Significance of the Economic Prosperity of 1955–56", *The Japan Christian Year Book*, Tokyo, 1957, p. 29.

"The statistics show complete unemployment of about 500,000 jobless against the labor force of some 43 million. But taken into account of workers employed in status of non-secured condition in firms and small enterprises, then more than 5 million may be given as disguised unemployment. Moreover, the labor force is swelling at an annual rate around a million; and the biggest problem facing the nation is to achieve full employment in the modern sense of the term." Keiichiro Hirata, "Foreign Investment to Japan," *Oriental Economist*, September 1958, p. 485.

Examples of Western references to aspects of the problem may be found in Solomon B. Levine, *Industrial Relations in Postwar Japan*, Urbana, Illinois, 1958, pp. 3–4, and in his "Labor Patterns and Trends", *The Annals of the American Academy of Political and Social Science*, Vol. 308. November 1956, p. 103. William W. Lockwood, *The Economic Development of Japan: 1868–1938*, Princeton, 1954, contains references to the prewar situation on pp. 463–4, 478. Jerome B. Cohen has brief mention of the "oversupply of family farm labor" and related problems in *Economic Problems of Free Japan*, Princeton University Center of International Studies Memorandum No. 2, Princeton, Sept. 22, 1952, pp. 12 and 14.

The issue, itself, is a highly controversial one in Japan, and some Japanese economists have expressed strong doubts concerning both the uniqueness and severity of the problem of underemployment in Japan. Within the Japanese government, the Economic Planning Agency has recently taken a conservative position with respect to estimates of underemployment (See Economic Planning Agency, *New Long-Range Economic Plan of Japan: 1958–1962*, Tokyo, 1957, esp. p. 139).. Professor Shigeto Tsuru's estimate, discussed below, is considerably less than those cited above. For an expression of doubt concerning the existence in Japan of a significant amount of zero marginal productivity disguised unemployed, see Kazushi Ohkawa, "Economic Growth and Agriculture," *The Annals of the Hitotsubashi Academy*, Vol. VII, No. 1, October 1956.

to other countries or to deal with the causes and effects of underemployment. Following a brief digression on theoretical criticisms of the concept of disguised unemployment, some tentative conclusions will be presented.

I. *Definitions of Terms*

In this study, the term "chronic underemployment" will be used to describe a secular underutilization of the available labor time of those technically classed in the employed civilian labor force and also of those who are not normally counted in the civilian labor force either as employed or totally unemployed. This definition is intended to exclude seasonal and cyclical underemployment, inadequate use of basic skills, voluntary part-time employment, and potential underemployment.[3] These latter situations constitute another group of economic phenomena requiring separate analyses appropriate to their character.

The problem of dealing with this topic is greatly complicated by the proliferation of terms used to describe substantially the same phenomena and by the different meanings occasionally attached to the same term. In Japan, such expressions as "disguised unemployment", "latent unemployment", "underemployment", and "defective employment" are sometimes used almost synonymously and at other times distinctions are made among them.[4] The concept of disguised unemployment, both because of its popularity and its ambiguous use, especially requires detailed comment in order to avoid misunderstandings in the ensuing discussion.

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[3] The term "potential underemployment" is used here in the sense of the labor time that could be released through technological change including capital expansion. Cf. Chiang Hsieh, "Underemployment in Asia", *International Labour Review*, June 1952; and International Labour Office, *Measurement of Underemployment* (Report prepared for the Ninth International Conference of Labour Statisticians, April–May 1957), Geneva, 1957, esp. p. 86.

[4] Cf. fn. 2, p. 1 and Professor Tsuru's analysis described below. In Japanese, both "latent unemployment" and "disguised unemployment" are often translated as "senzai-shitsugyo". Professor Tokutaro Yamanaka attributes the first use of the expression, "senzai-shitsugyo", to Dr. Teijiro Uyeda and his associates in a population study published in Tokyo during the early 1930's (Cf. Tokutaro Yamanaka, "On Latent Unemployment–An Interpretation as an Economic Problem", *The Annals of the Hitotsubashi Academy*, Vol. VI, No. 2, April 1956, pp. 3 and 7). The popularity of the concept in Japan may stem partly from concern over what is regarded as a highly misleading impression given by the strikingly low National Government total unemployment figures which are said to "disguise" a serious inadequate employment problem. It has been suggested that some feel that these figures must disguise the "reserve army of the unemployed" predicted by Marx. Others, aware of Japan's admittedly serious problems of poverty, appear to find it difficult psychologically to reconcile Japan's relatively low level of living with persistent achievement of statistical full employment. In this latter case, Western economists may have been at fault for implying that achievement of full employment meant (at least in the short run with a given labor force) a satisfactory general level of living. This may well be true in countries like the United States where productivity per employed person is comparatively high. But there is nothing inconsistent with full employment (even in the sense of every member of the labor force employed to the full extent of his abilities, say, 45 hours per week every week) and extreme poverty. This can easily happen in a country like Japan whose labor resources are abundant relative to capital and natural resources and average productivity is consequently low.

Before the war, Mrs. Joan Robinson defined disguised unemployment as the adoption of low productivity occupations by workers who have been dismissed from higher productivity occupations as a result of a decline in effective demand. It is clear from her discussion that Mrs. Robinson is primarily concerned with a cyclical rather than a secular or chronic phenomenon, and that the marginal productivity of the disguised unemployed may range all the way from zero to just under the marginal productivity of the job which was lost.[5] After the war, it became popular, especially with reference to the rural areas of underdeveloped countries, to use the term "disguised unemployment" to describe a chronic condition in which, assuming no change in techniques and only minor organizational adjustments, the withdrawal of a person from employment would not reduce aggregate output, i.e., the worker's marginal productivity equals zero. Professor Nurkse, who employed this type of definition, stated further that, "The term disguised unemployment is not applied to wage labour. It denotes a condition of family employment in peasant communities. A number of people are working on farms or small peasant plots, contributing virtually nothing to output, but subsisting on a share of their family's real income. There is no possibility of personal identification here, as there is in open industrial unemployment."[6] In Japan, the term has been broadened to include self-employed proprietors and unpaid family workers in the secondary and tertiary sectors, and some appear to have used it to refer to all types of workers receiving incomes below a certain level. In the latter case one might say the concept has become merely a synonym for poverty among the employed. In some cases, little attempt has evidently been made to distinguish between seasonal, cyclical, and chronic underemployment. Different definitions as well as criteria of measurement have led to estimates (also sometimes designated as "latent unemployment" and "underemployment") ranging from about 2 million to 10 million persons, or roughly 5% to 25% of the civilian labor force.

In this study, for the sake of convenience, the term "disguised unemployment" will be used to describe a chronically zero marginal productivity situation (in the Nurksean sense) among proprietors and unpaid family workers, regardless of economic sector. No distinction will be made in this case between full-time and part-time work as defined with reference to the number of hours, days, or weeks of work. Either could involve a hidden zero marginal productivity situation. Two half-time family workers could be thought of as one totally unemployed worker since the product lost by the withdrawal of either one could be offset, *cet. par.*, by full-time employment of the other.

It is important to note that disguised unemployment, in the sense employed here, is a subcategory of chronic underemployment as defined above. The other categories will be chronic involuntary part-time employment among wage-earners and chronic involuntary underemployment or unemployment within the group classified as not in the labor force.[7]

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[5] Joan Robinson, *Essays in the Theory of Employment* (2nd Edition), Oxford, 1947, pp. 60–74. The original edition was published in 1937 and the chapter on disguised unemployment was based on an earlier article published in the *Economic Journal*.

[6] Ragnar Nurkse, *Problems of Capital Formation in Underdeveloped Countries*, New York, 1955, p. 33.

II. *Estimation of Chronic Underemployment in Japan and the United States*

Any statistical comparison between two countries with respect to chronic underemployment is fraught with almost insurmountable difficulties arising from differences in statistical definitions, methods of obtaining data, and amount and coverage of research. In the field under discussion, concepts and research techniques are still in a relatively early stage of development. Consequently, the analysis in this section must be regarded as highly tentative. Its objective will not be to provide accurate estimates of chronic underemployment in either Japan or the United States, but to test, within limitations of the available data, the view that Japan's chronic underemployment problem is uniquely different from the situation prevailing in the United States. The basic problem is to obtain estimates based on similar criteria and methods of measurement in both countries. With respect to Japan, a recent detailed study by Professor Tsuru provides a conservative estimate of what he terms "latent unemployment", but which corresponds to our definition of chronic underemployment.[8] Following a description of his criteria and results, an effort will be made to derive a minimum figure for the United States using, in so far as possible, similar conservative criteria and the limited data currently available to the author.

Tsuru's estimate grew out of a critical analysis of the statistical bases for government and private estimates of "latent unemployment" ranging from more than six million to ten million persons in recent years. He employs data provided by the detailed Cabinet Bureau of Statistics Labor Force Survey of March, 1955.[9] He points out that "latent unemployment" figures in Japan are derived from four overlapping groups: 1) those working less than 35 hours per week, 2) family workers, 3) independent proprietors, and 4) those who wish to work but who are not included in the labor force because they are not actively seeking work. After eliminating as much overlapping as possible and including primarily those who were available for fuller utilization of their time, he arrives at figures for "latent unemployment" for Japan in 1955, which may be summarized as follows:

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[7] The connotation of the term "underemployment" is admittedly being stretched in including this last group. Attempts in the United States to include members of the group in the statistics of the totally unemployed will be discussed below.

[8] Shigeto Tsuru, "Employment in Japan: Problems and Prospects," *Far Eastern Survey*, Vol. XXVI, No. 7, July 1957, pp. 97–103. This article was reprinted in Professor Tsuru's *Essays on Japanese Economy*, Tokyo, 1958. Subsequent page citations will be made with reference to the reprint.

[9] In estimating chronic underemployment, a key problem is finding data which reflect as little seasonal, cyclical, and irregular influence as possible. It is not clear from Tsuru's discussion to what extent seasonal and irregular influences have been taken into account in his estimates. From a cyclical standpoint, however, the choice of 1955 is a fairly good one for both the United States and Japan, since it represents neither the peak of a prosperity nor the pit of a depression.

1. Disguised Unemployed	
a. Farm proprietors	1,000,000
b. Non-farm proprietors	300,000
c. Family workers	720,000
	2,020,000
2. Involuntary part-time wage-earners	120,000
3. Those not classified in the labor force but who desire full-time wage-earning employment	500,000
Total (6.3% of the civilian labor force plus non-labor force members in category 3)	2,640,000

A few words of comment on the derivation of these estimates are necessary. The farm proprietor group is said to represent the number who might be withdrawn from agriculture without diminishing the total product of the economy "provided necessary adjustments are made." In other words, they are "disguised unemployed" in the Nurksean sense. The estimate represents about 16% of all farm proprietors. The only justification given for this figure is that there is general agreement on it.[10] The estimate, as Tsuru indicates, however, is rather conservative compared with estimates of the Government Council on Employment Policy which ranged from about 3.5 to 4.2 million (including unpaid agricultural family workers and hired hands) from 1952 to 1954.[11]

The figure for non-farm proprietors appears to include mainly those who stated that they wished to change their occupation. The family worker and part-time wage-earner figures include only those who either stated that they wished to change their positions or that they were dissatisfied with them, though, they desired to continue in their present status. The group of those officially excluded from the labor force consists rather arbitrarily of about half of those who expressed a desire for full-time income-earning employment.

In the group labeled "disguised unemployed" are evidently included about 300,000 proprietors and 160,000 family workers who worked less than 35 hours per week and expressed dissatisfaction with their employment situation. Tsuru designates these groups, along with the involuntary part-time wage earners, as

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[10] Various empirical studies have been made by Japanese economists in an effort to determine the existence and magnitude of disguised unemployment in Japan. Attempts to derive production functions for certain agricultural products (especially rice) have provided results indicating the existence of zero, or close to zero, marginal productivity of labor in certain cases. For example, See Keizo Tsuchiya "Production Function in Japanese Agriculture," *Records of Researches in the Faculty of Agriculture, University of Tokyo*, No. V (1954-1955), March 1956, pp. 28–9 (Abstract from Nogyo Sogo Kenkyu, Quarterly Journal of Agricultural Economy, No. 1, 1955).

[11] Tsuru, *Essays on Japanese Economy*, p. 88.

"under-employed", thus treating underemployment as a subcategory of "latent employment" apparently overlapping with "disguised unemployment."[12]

Let us, for the sake of argument, accept Tsuru's estimate of "latent unemployment" as a reasonable 1955 figure for Japan for what we have defined as chronic underemployment. How does this compare with chronic underemployment in the United States if we apply similar criteria?

The problem of finding a suitable and comparable estimate of chronic underemployment in the United States is a formidable one. Let it be noted at the outset that while some Japanese economists assert that the United States has little or no problem of this sort, certain economists in the United States insist that quite the contrary is the case. Ducoff and Hagood state, for example, that "The identification of partial and disguised unemployment is significant in any type of economy under any national employment conditions. In the United States, where the general levels of productivity and living standards are high, the existence of a substantial amount of underemployment in some sectors of the economy stands in contrast to the accepted norms and evokes inquiry as to what can be done about it."[13]

Table 2 *Civilian Labor Force of Japan and the United States*[1] *by Status and Type of Employment, 1955*

(Persons 14 years of age and over in thousands)

Status	Agricultural Employment				Non-Agricultural Employment				Total			
	U.S.	%	Japan	%	U.S.	%	Japan	%	U.S.	%	Japan	%
Wage and Salary Workers	1,862	26.4	530	3.1	49,967	88.6	15,440	64.5	51,829	81.7	15,970	38.9
Self-employed	3,764	53.3	5,530	32.4	5,851	10.4	5,100	21.3	9,615	15.2	10,620	25.8
Family Workers[2]	1,434	20.3	11,090	64.5	546	1.0	3,410	14.2	1,980	3.1	14,500	35.3
Total	7,060	100.0	17,150	100.0	56,364	100.0	23,970[3]	100.0	63,424	100.0	41,120[3]	100.0

Notes: 1. U.S. figures are based on averages of data for April and October.
2. U.S. figures for family workers include only those who worked 15 hours or more during the survey week. Japanese family worker figures include those who worked 1 hour or more during the survey week. Consequently, the U.S. estimates are understated relative to the Japanese.
3. Components do not add up to totals because of rounding of intermediate figures. Per cents are based on actual totals of components.

Sources: For U.S.; Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P–57 as cited in *Statistical Abstract of the United States: 1957*, Washington, D. C., 1957, p. 212.
For Japan; *Year Book of Labor Statistics: 1955*, Division of Labor Statistics and Research, Ministry of Labor, Japan, October 1956

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[12] *Ibid.*, pp. 86–7.

[13] Louis J. Ducoff and Margaret J. Hagood, "The Meaning and Measurement of Partial and Disguised Unemployment", *The Measurement and Behavior of Unemployment* (National Bureau of Economic Research Report), Princeton, 1957, p. 163. Ducoff and Hagood do not make any clear-cut distinction between the concepts of underemployment and disguised unemployment, but regard them as among the "terms used to connote the several manifestations of inadequate employment opportunity or the underutilization of the actual or potential man-

Since disguised unemployment, which is one of our subcategories of underemployment, is supposed to lurk mainly among selfemployed and unpaid family workers, who may appear to be working full-time even when "unproductive", the total number of these workers is of some significance in making or evaluating underemployment estimates. The data in Table 2 show the situation in the United States as compared with Japan. As noted in the table, the data are not strictly comparable because of an understatement of the number of American family workers as compared with Japan. The relatively very high proportion of family and self-employed workers in Japan, so often stressed by economists, is obvious from the table. At the same time, these two groups in the United States constitute a large proportion of total agricultural employment and a considerably smaller, but not unappreciable, proportion of non-agricultural employment. Consequently, the possibility of considerable disguised unemployment, as well as other forms of underemployment, exists in the United States, especially in the rural areas.

In estimating chronic underemployment in the United States, we may begin with the data for part-time employment. In 1955, the annual average number of persons 14 years old and over working less than 35 hours per week, but counted as employed, was 10.33 million (15.7% of the civilian labor force). The figure includes the following groups: 1) voluntary part-time workers who prefer part-time work; 2) workers who usually work full time but who are temporarily working part time for non-economic reasons such as illness, vacation, inclement weather, and so on; 3) workers who usually work full time but who are temporarily working part time for economic reasons such as slack work, shortage of materials, plant and equipment repairs; and 4) workers who are regularly employed part time but who desire and would take full-time employment. They include both paid and unpaid workers in all sectors of the economy. Groups 3) and 4) are often referred to as "partially employed" or "partially unemployed." Following Bancroft, they may be labelled "economic part-time workers" and "involuntary part-time workers" respectively.[14] Group 4) may be considered as appropriate for inclusion in an estimate of chronic underemployment and appears to correspond roughly to Tsuru's group of part-time workers in Japan totaling 580,000 persons in 1955. In that same year, the annual

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power resources." They divide the "inadequately employed" into two subgroups: (1) the underemployed who do not have a sufficient amount of work, and (2) the employed who get substandard returns per hour of work because of its low productivity (mainly self-employed unpaid family workers) or because they are employed at substandard wages". (*Ibid.*, p. 155). This implies a concept of disguised unemployment corresponding to the broader definitions in Japan and encompassing far more workers than the narrower zero marginal productivity concept.

[14] Cf. Gertrude Bancroft, "Current Unemployment Statistics of the Census Bureau and Some Alternatives", *The Measurement and Behavior of Unemployment* (National Bureau of Economic Research Report), Princeton, 1957, pp. 91–2. Albert Rees uses the term "involuntary part-time workers" to include group 3) as well as group 4). See his "The Meaning and Measurement of Full Employment," *The Measurement and Behavior of Unemployment*, (National Bureau of Economic Research Report), Princeton, 1957, pp. 21–22. Both Bancroft and Rees have excellent discussions of the measurement and significance of partial unemployment.

average of monthly estimates for this group in the United States was 1,060,000 workers of which 930,000 were non-agricultural and 130,000 were agricultural.[15]

It has been pointed out that the U. S. Census statistics on partial employment do not provide an adequate measure of underemployment among the self-employed, especially in the rural areas where the work is apt to be highly seasonal and data derived from a single census week may not reflect the true degree of chronic underemployment.[16] Slack work during some weeks may be balanced by excessively long hours during other weeks. The work pace from one hour to the next may vary greatly. Consequently, attempts are being made to devise more satisfactory methods of defining and measuring surplus manpower in America's agricultural areas. One criterion, also used in Japan, is the income level of the farm family. This, however, reflects not only the number of hours worked but the average productivity per hour as well. A low income level could mean full-time work with substandard returns per hour. This could be considered equivalent to part-time work with standard returns per hour, where the term "standard" means a level consistent with the type of occupation and degree of capacity of the worker. On the other hand, a low income in comparison with other families might mean full-time work with returns per hour which are low in the absolute sense but which merely reflect a low productivity type of work and or a low individual capacity. Hence, by itself, income level is an imperfect criterion of underemployment. Moreover, the choice of the critical income level below which a farm family is classified as underemployed is extraordinarily difficult.[17] Where an urban minimum wage standard is used, there arise complex questions of urban-rural real income comparisons which it is beyond the scope of this paper to discuss. In spite of the limitations mentioned, substandard annual income is apparently popular among American research workers as a criterion of underemployment in rural areas. Ducoff and Hagood reported that the 1950 U. S. Census of Agriculture showed "1,622,000 farm-operator families with heads between the ages of twenty-five and sixty-five which had total family incomes of less than $2,000".[18] In their comment on this fact, they declared that, "We have no information on the annual input of labor by these families, but it is believed that they averaged considerably less than full years of work and that the returns per hour averaged lower than the statutory minimum for most nonagricultural wage workers. Data on their land, machinery, livestock, etc., indicate that insufficient physical and capital resources were available for adequate employment of the manpower."[19]

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[15] Bureau of the Census, *Current Population Reports*, Series P–50, No. 67, March 1956. The averages are based on nine months only, the data for January, March, and April not being available. For those who feel "economic part-time workers" should also be included, the figures for 1955 for this group are 918,000 non-agricultural workers and 147,000 agricultural workers. For a convenient summary of data for the period 1948–1954, see Bancroft, *op. cit.*, pp. 111–118. It should be noted that in May 1955, the Census Bureau introduced a slightly different method of classifying those who usually work part time. The two component groups were redesignated "worked part time for economic reasons" and "worked part time for other reasons". According to Census Bureau explanations, the first of these component groups is essentially the same as the group we have designated "involuntary part-time workers".

[16] Cf. Ducoff and Hagood, *op. cit.*, p. 158.

[17] A similar problem arises when productivity is used as a criterion. Professor Ohkawa, after noting the continuous nature of both wage and productivity differentials in the Japanese economy, observed that..."if we take up a representative definition of disguised unemployment according to which the marginal productivity of labor is lower than that of normal employment, we are quite puzzled to find that there is no normal level of labor productivity with which the so-called lower productivity of labor can be compared." (Kazushi Ohkawa, "The Differential Employment Structure of Japan," *The Annals of the Hitotsubashi Academy*, Vol. IX, No. 2, April 1959, p. 217)

How many members of these families might be considered disguised unemployed in the sense of zero marginal productivity is impossible to say. The question at the moment is whether or not we can derive from data of this type a reasonably conservative estimate which can be compared with Japanese estimates of agricultural underemployment based on similar criteria. It may be argued that $2,000 is too high a critical level, but even if one takes an annual family personal income of $1,000 as the critical level, one still finds 597,000 farm-operator families of two or more related persons which received less than this amount in 1954, the most recent year for which data were available to the writer.[20] Combining this information with the Ducoff and Hagood observations and the estimate of about 130,000 involuntary part-time agricultural workers, it might not be unreasonable to consider at least 300,000 U.S. agricultural workers (about 4.5% of total agricultural employment in 1955) as underemployed. No effort will be made in the case of this group to distinguish between zero and positive marginal productivity labor.

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[18] Evidently the income figure includes an estimate of the value of income in kind. With respect to money income, 50.7% of U. S. rural farm families (about 2,800,000) received less than $ 2,000 in 1950; the corresponding figure for 1955 was 48% (about 2,500,000 families) according to Bureau of Census estimates. In evaluating these figures one should be cautioned against attempting to compare dollar incomes with yen incomes on the basis of the foreign exchange rate of ¥360=$ 1. There is strong evidence that the consumer purchasing power of the yen is much greater than this rate implies. (See, for example, Tsunehiko Watanabe and Ryutaro Komiya, "Findings from Price Comparisons Principally Japan vs. the United States," *Weltwirtschaftliches Archiv*, Band 81, Heft 1, 1958, p. 83.)

[19] Ducoff and Hagood, *op. cit.*, p. 159. They give as the source of their information, *Long Range Farm Programs*, Technical Studies by the Department of Agriculture Relating to Selected Farm Price Support Proposals for the House of Representatives, Committee on Agriculture, 83d Congress 2d session, 1954, p. 160.

[20] The personal income figure is before taxes and includes certain imputed items such as net rental value of owner-occupied dwellings, wages in kind, the value of food and fuel produced and consumed on the farm, and imputed interest. These families constituted about 11.7% of the total number (5,100,000) of farm-operator families, yet received only 2.2% of the total income. Average annual income per family in this group was about $ 680. The data are taken from Selma F. Goldsmith, "Income Distribution in the United States, 1952–55," *Survey of Current Business*, June, 1956, p. 15. Ducoff and Hagood also mention as evidence of U.S. rural underemployment some special area studies which attempted to measure the number of farm workers, living in low-income rural sections of Kentucky and Oklahoma, who desired different or additional employment. In these areas it is interesting to note that only a small per cent of the family heads who were considered underemployed on the basis of a substandard amount of time worked, indicated willingness to accept out-of-area non-farm employment; but a much greater proportion were interested in extra employment in non-agricultural jobs within their own local areas. Ducoff and Hagood caution that "questions on availability are not always very meaningful or realistic in research projects of this type when the interviewer cannot offer anything in the way of a concrete job." They also note the ineffectual recommendation of American researchers that more industry be established in surplus labor rural areas. (Ducoff and Hagood, *op. cit.*, pp. 161–3). Japan may have succeeded better than the United States in providing rural labor, which would otherwise be underemployed on the farm, with supplementary or full-time non-agricultural employment opportunities.

Because of lack of available data, no attempt will be made to estimate underemployment among non-agricultural proprietors and unpaid family workers beyond what is already included in the previous figure of 930,000 involuntary non-agricultural part-time workers.[21]

With respect to Tsuru's third category of those who are not counted in the labor force but who desire employment, the United States, like Japan, has a recognized problem. Obtaining a comparable estimate of this group for the United States is greatly complicated by a difference between the Japanese and United States statistical definitions of total unemployment. The Japanese definition confines the totally unemployed strictly to "able persons...who wanted to work and sought for work actively" during the survey week, exclusive of employees not at work but who "received or are expected to receive payment" and self-employed who were not at work "provided their employees or unpaid family workers engaged in their business during the survey week."[22] The U. S. Bureau of Census definition adds to non-jobholders who were actively seeking work, an "inactive" group of persons who desired employment but who were not actively seeking work during the survey week because of 1) temporary disability or illness, 2) an indefinite or more than 30-day layoff,[23] or 3) a belief that no work was available in the community or in a line suitable to the training of the person. These people are considered as not in the labor force in Japan and it is from this group that Tsuru draws a considerable portion of the "latent unemployed" in Japan. In other words, it would appear that about 18.5 per cent of Japanese "latent unemployment" (as estimated by Tsuru) would be treated as part of total unemployment in the United States. However, there is considerable doubt concerning the extent to which persons in this group are actually included in the United States figures for total unemployment. According to Miss Gertrude Bancroft of the Bureau of Census, it was suspected some years ago that the personal nature of the interview question on reasons for not looking for work either caused interviewers to refrain from asking it to avoid irritating the respondent, or caused respondents to give false reasons. Consequently, in 1945, a "revised schedule eliminated the question on the reason for not looking for work, but the concept of unemployment remained the same. The interviewers were instructed to classify as among those 'looking for work' anyone who on the basis of information furnished, appeared to meet the definition of inactive unemployed."[24]

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[21] As Table 2 indicates, the United States has an appreciable number of non-agricultural self-employed workers. About 40% of these are found in wholesale and retail trade, 18% in contract construction, and 27% in the services area. (Department of Commerce data for 1955 and 1956, cited in *The Economic Almanac: 1958*, National Industrial Conference Board, New York, 1958, p. 290). A study of retail trade showed almost 1,500,000 individual proprietorships and partnerships (about 86% of total retail establishments). About 40% of this group had no paid employees and roughly 70% employed three or less. Figures for sales indicate small-scale operation and low net income for a high proportion of the group. (Cf. Bureau of Census data for 1954 cited in *The Economic Almanac: 1958*, p. 850). Even in manufacturing, a large proportion of establishments are sole proprietorships and partnerships (A Department of Commerce survey in 1947 showed 69%. Cf. *The Economic Almanac: 1958*, p. 271). Many are small scale. According to Bureau of Census data, in 1954 about two-thirds of all U. S. manufacturing firms employed fewer than 20 workers (*The Economic Almanac: 1958*, pp. 797–8).

The number of unpaid non-agricultural family workers is relatively small in the United States compared with Japan. The difference, as previously noted, may be due partly to the exclusion by U.S. statisticians of those unpaid family workers who work less than 15 hours per week.

[22] *Year Book of Labor Statistics: 1955*, Division of Labor Statistics and Research, Ministry of Labor, Japan, September 1956, p. 9.

[23] Since 1957, persons on layoff who had definite instructions to return to work within 30 days of the date of layoff have also been included in the totally unemployed.

In 1944 and 1945, prior to the change in procedure, those reported as "inactively unemployed" constituted, on the average, 46% of the totally unemployed. Most of this group (an average of about 72%) gave temporary illness as their reason for not actively seeking work.[25] The existence of the war at the time probably exaggerated the percentage of "inactive unemployed" because of fear of appearing unpatriotic if one was not seeking employment for some acceptable reason, and because of the relatively low number of "active" jobless who, in such a period, were unable to find work.[26] For these reasons and because of the later procedural change, such data cannot be used in our analysis. In the face of absence of any reliable estimates of the proportion of "inactive unemployed" currently included in total unemployment figures, we shall base our estimate on special surveys of those officially not in the labor force. These show the presence of large numbers of "inactive unemployed" who escaped inclusion in the figures for the totally unemployed.[27]

In a Bureau of Census survey in June, 1947, of persons officially not in the labor force, 2.89 million said they wanted a job. Closer questioning on the reasons for not seeking work showed that 2.33 million actually had little enthusiasm for wage-earning work and 563,000 (including about 446,000 who fell within the census definition of totally unemployed) appeared to show a definite labor force attachment.[28] Another survey in June, 1950, first isolated those officially not in the labor force who had, since the first of the preceding month, looked for work. Among these, 536,000 (about 1.2 per cent of those not in the labor force) stated they could take a job and wanted a full-time job.[29]

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[24] Bancroft, *op. cit.*, pp. 71–2.

[25] *Ibid.*, pp. 100–1.

[26] *Ibid.*, pp. 71–2.

[27] To the extent that some of the jobless not actively seeking work are still included in the totally unemployed in the United States, the total unemployment rate in Japan is understated relative to that in the United States. A further source of understatement of unemployment as a percent of the total labor force lies in the different definitions of the labor force in the two countries. As noted above, the Japanese definition of family workers includes those working 1 to 14 hours during the survey week. These are excluded in the United States. This relative overstatement of the Japanese labor force makes a given volume of total unemployment a smaller per cent of the total labor force than would be the case using United States criteria. It follows that part of the disparity between the total unemployment rates of Japan and the United States is merely a statistical illusion.

[28] Bancroft, *op. cit.*, pp. 79, 106.

[29] *Ibid.*, pp. 79, 107.

Professor Wilcock provides additional evidence. He considers the group with which we are concerned as a category of "secondary workers" whom he defines as "those who have had, are having, or are about to have a temporary labor force attachment."[30] Among the "inactive unemployed" he concentrates his attention on those who are not actively seeking work because they believe no suitable jobs are available. He cites a case study made in 1951 in St. Paul, Minnesota, in which it was estimated that 9 per cent of those not classified in the labor force under census definitions desired work but were not actively seeking it because of belief in lack of availability of a job of a desired type or for which they had adequate training; 33 per cent, including those who required special conditions such as part-time work, considered themselves as currently available; 42 per cent answered "yes" to the question: "Do you ever think you would like to take a job?"[31]

How can we arrive at an estimate of this group in the United States roughly comparable to Professor Tsuru's estimate for Japan? In 1955, the number of non-labor force persons in Japan who expressed a desire for wage-earning employment was about 13 per cent of the total number of non-labor force persons. Of this number, Tsuru accepted 20 per cent (half of those who wished full-time employment) or 2.6 per cent of the total number of non-labor force persons. If we should make the heroic assumption that the St. Paul study was roughly typical of the nation in 1955 and that the 9 per cent figure consisted mainly of those available for full-time employment (since the 33 per cent apparently included those who desired part-time work), by following Tsuru in accepting half of this group we would arrive at a figure of 4.5 per cent of the American non-labor force, or almost 2,200,000 persons. In view of the limitations of the data, however, it would be safer to assume a lower percentage. Perhaps we can be reasonably confident that the figure comparable to the Japanese estimate is at least 1 per cent of those not in the labor force, excluding persons in school, or about 400,000 persons in 1955. This estimate is supported by the results of the special Bureau of Census surveys described above. Its conservatism is enhanced to the extent that the total unemployment figures also include members of this group who should properly be treated as underemployed for purposes of comparison with Tsuru's data.

Our results, representing a "minimum estimate"[32] of chronic underemployment in the United States for 1955, may now be summarized:

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[30] Richard C. Wilcock, "The Secondary Labor Force and the Measurement of Unemployment", *The Measurement and Behavior of Unemployment* (National Bureau of Economic Research Report), Princeton, 1957, p. 168.

[31] *Ibid.*, pp. 197–201. A study of Columbus, Ohio, using somewhat different criteria, showed similar results. Wilcock notes that both cities are large with a variety of employment opportunities and that the studies took place at a time when the demand for labor was high. He warns, however, that, "Exaggeration may have resulted from the wording of questions, the respondents answering within a broader time reference than the census week, and the phenomenon.... that some people about to enter the labor force may be matched by others about to leave." (*Ibid.*, p. 201). The same warning may well apply to similar Japanese statistics.

[32] The term, "minimum estimate", is used here in the sense of a figure which we can be reasonably confident understates the actual situation.

1. Non-agricultural involuntary part-time workers	930,000
2. Agricultural underemployed	300,000
3. Those not classified in the labor force but who desire full-time wage-earning employment	400,000
Total (2.5% of the civilian labor force plus non-labor force members in category 3)	1,630,000

The analysis suggests that while the problem of chronic underemployment may be more serious in Japan than in the United States, Japan is probably not as uniquely different from the United States in this respect as some have apparently assumed. Further research may well indicate that, even in terms of relatively conservative criteria, the problem of chronic underemployment in America is considerably more serious than the minumum estimate tentatively suggested in the preceding discussion.[33]

III. *A Theoretical Note on Disguised Unemployment*

There is little dispute concerning the presence of underemployment, in the sense of positive marginal productivity involuntary part-time workers, in all countries. The existence of zero marginal productivity disguised unemployment in significant numbers or even at all, however, has been questioned recently on both theoretical and empirical grounds by a number of economists. Since their criticisms apply to the above analyses for both Japan and the United States, a brief discussion of the question may be appropriate at this point. The discussion will be confined, however to the theoretical validity of the concept alone. One of the foremost critics of the concept, Professor Jacob Viner, expressed his doubts that a significant amount of zero marginal productivity labor could be established *a priori* as a chronic phenomenon. "As far as agriculture is concerned." he said, "I find it impossible to conceive of a farm of any kind on which, other factors of production being held constant in quantity, and even in form as well, it would not be possible, by known methods, to obtain some addition to the crop by using additional labor in more careful selection and planting of the seed, more intensive weeding, cultivation, thinning, and mulching, more painstaking harvesting, gleaning, and cleaning of the crop."[34] He added that, "Unless one assumes non-economic motivation on the part of employers, there is difficulty also in conceiving why they should hire at any wage-rate additional units of labor beyond the point at which they know the labor will add less in value to the product than the wage-cost, to say nothing of the case where the labor will add nothing to and may even subtract from the product."[35] He implied that while the employer might be ignorant of the facts, he was at least as well-informed as the speculative economist. With respect to the self-employed, he argued that where mobility of labor exists, the self-employed should not chronically receive less than hired labor, i.e., their marginal productivity should not persistently equal zero or less.[36] Viner devoted relatively little attention to the numerous empirical studies purporting to show the existence of large amounts of disguised unemployment. He arrived at a rather tentative conclusion that "there is little or nothing in all the phenomena designated as 'disguised unemployment', as 'hidden unemployment', or as 'underemployment' which in so far as they constitute genuine social problems would not be adequately taken into account by competent, informed, and comprehensive analysis of the phenomenon of low productivity of *employed* labor, its causes, its true extent, and its possible remedies. What would not belong to such analysis would, in comparison, probably be little more than economists' play-things, whose cure, if they were evils, would make only a negligible contribution to the cure of sick or stagnant national economies."[37].

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[33] While Japan may not be quite so unique as is sometimes thought with respect to what we have called "chronic underemployment," many scholars have noted at least one important respect in which Japan's employment situation differs significantly from that in the United States. This is the underutilization of full-time wage earners, especially in non-agricultural industries, growing out of the two-way commitment between the employer and his "regular" employees. The employee under this system is normally hired immediately after graduation from school and expects to remain with the firm for the rest of his life. It is not "proper" for him to leave, even to take a better job, without the full concurrence of his employer. The employer is expected to treat him as a member of the company "family" and to discharge him only under extreme circumstances. Under such a system, underutilization of labor, both from the standpoint of time and ability, can readily develop within a given firm. The unneeded or unsatisfactory worker is retained, sometimes in an innocuous position created especially to enable him to maintain a proper status within the company. A certain amount of this, of course, exists in Western countries, but in Japan it appears to be formalized into an open system where it is considered the acceptable and expected procedure. Moreover, it has been argued that the system is not the result of poor employment opportunities in Japan as reflected in "latent unemployment" figures, but arises from the basic ancient "hierarchical-kinship" social structure of Japan with roots deep in Confucian philosophy.

The underutilization of labor which may arise through this system could well be termed a kind of chronic "disguised unemployment", but it can occur even among wage and salary earners of high income status working in large and respected firms. It may seem curious that, while disguised unemployment among family workers and the underutilization of wage labor due to the permanent commitment system both represent surplus labor problems with similar impact on the national output, the first is deplored while the second is generally approved. It would appear in the second case that social custom takes precedence over economic rationality, contrary to Western ideology, but it may well be that the West has over-emphasized economic efficiency at the expense of other important human values. (For a fuller discussion of this problem, see James G. Abegglen, *The Japanese Factory: Aspects of Its Social Organization*, Glencoe, Illinois, 1958; Solomon B. Levine, *op. cit.*, esp. chap. II; Susumu Takamiya, "Management and Labor in Japanese Enterprise," mimeographed paper presented at the Conference on Industrialism and Industrial Man, January 22, 1959, Tokyo).

Viner's doubts about the empirical existence of a substantial amount of chronically zero marginal productivity labor may be valid, but his *a priori* reasons are open to question. The argument that the self-employed probably have a positive marginal productivity because they are likely to earn at least as much as hired labor is qualified by the assumptions of economic motivation of employers and adequate mobility of labor. But it is precisely these classical assumptions which are of doubtful realism, especially in the rural areas of countries where disguised unemployment is presumed to exist. The classical argument might be put this way. Assume a situation in which any one member of a family group of unpaid workers has zero marginal productivity and each receives in terms of real income an amount in excess of the rate for hired labor in the local area. It would still be economically logical for one worker to take a job as a hired laborer. Giving up the farm work would subtract nothing from the farm income and the hired labor income would, no matter how small, be a net gain for the family as a whole. If, at the current hired-labor rate, more workers sought jobs than were demanded, the rate would fall, and, if necessary, continue to fall until it reached zero, in which case it would accurately reflect the fact that disguised unemployment existed. But since, in reality, hired labor receives a positive wage, it is argued that disguised unemployment probably does not exist.

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[34] Jacob Viner, "Some Reflections on the Concept of Disguised Unemployment," *Indian Journal of Economics*, Vol. XXXVIII, No. 148, July 1957, p. 18.

[35] *Ibid.*, p. 18.

[36] *Ibid.*, pp. 18–19.

[37] *Ibid.*, p. 23.

It must be admitted that a great deal of supplementary work is sought and obtained by labor which would be underemployed by work on the family farm alone. But to solve fully the underemployment problem requires sufficient job opportunities and knowledge of these opportunities. It is conceivable that a positive wage for hired labor might exist in an area and yet the wage-earning jobs available in the area be chronically less than the number of disguised unemployed. In the first place, it is doubtful that a zero wage under any circumstances would persistently occur since it really means a gift of labor, not a wage. Secondly, there is a certain amount of institutional stickiness in wages, aided and abetted by labor unions or government legislation in some countries, and fostered by social "just wage" customs found especially in the more isolated rural areas. With respect to job openings outside an area, mobility becomes even more of a problem due to well-known factors such as lack of knowledge of opportunities. Some outflow is always in progress, but in densely-populated areas where population is growing rapidly, a situation can readily be imagined in which disguised unemployment persists over a long period and yet the wages of hired workers in general remain positive and may even increase. It may be argued that in the long run the wage rate will approximate marginal productivity; but the concept of long-run equilibrium used in this case is a theoretical device, highly useful in isolating the ultimate effects of certain causal factors, but not intended as a description of what the actual situation is or even will be.

With respect to Viner's comment on the ever-present possibility of adding to the output of the farm by performing a little more work no matter how many people are living on it, it is not difficult to conceive of situations in which the extra income would be so small that it would simply not be regarded as worth the extra effort.

In general then, Viner's *a priori* arguments against the existence of disguised unemployment, if I have correctly understood them, leave much to be desired. But even granting the theoretical possibility of disguised unemployment, the basic question still remains concerning its empirical existence in the strict sense of zero marginal productivity. A detailed discussion of the various studies made in this connection, however, is beyond the scope of this article. The problem of accurate measurement is extraordinarily difficult as many have pointed out and requires careful consideration of the time period to be chosen for measuring productivity, the leisure-time preference of the family which is a matter of work-pace as well as hours or days of labor, proper checking and evaluation of purely subjective job-preference statements which often rest on implicit conditions, and sufficient adherence to the *cet. par.* assumptions of classical marginal productivity theory. Until more acceptable methods of measurement are found, it would seem advisable to accept all estimates with caution and avoid conclusions more precise than the data on which they rest.

IV. *Tentative Conclusions*

Throughout the preceding discussion, the limitations of the evidence for chronic underemployment in both Japan and the United States have been repeatedly emphasized. Consequently any statements based on our analysis must necessarily be preliminary and tentative. With this caution in mind, the following conclusions are presented:

First, Japan's statistics for total employment and unemployment "conceal" the existence of a considerable amount of chronic underemployment; but Japan is not uniquely different in this respect from the United States where a similar problem also exists.

Secondly, statistical methods (and perhaps concepts as well) are still not adequate to provide satisfactory estimates of underemployment in either Japan or the United States. Consequently, we cannot say with certainty that Japan's underemployment problem (according to our definitions) is more serious than that of the United States. It is the writer's present opinion that it probably is more serious, but that the degree of difference between Japan and the United States has been frequently exaggerated.

Finally, to say that Japan's underemployment problem is not so unique nor so severe as some have claimed is not to argue that Japan is well off. She is confronted with the acute and ancient problem of providing a rising level of living for a growing population with relatively limited natural and capital resources. It is conceivable that Japan might solve the problem of underemployment and still be poor. It is just as possible for a country like the United States to have a substantial amount of underemployment and still enjoy the highest per capita real income in the world.

INCREASING POPULATIONS AND INDUSTRIAL STRUCTURES

By Tokijiro Minoguchi

Professor of Population Problem

I

There are fairly close inter-realtions between increasing populations and industrial structures of occupied populations. In a so-called agricultural country where almost all peoples occupy in agriculture in consequence of less prevalence of division of labour the increase of population is very slow and fluctuating. But when the division of labour had once begun to develop in a country the industrial composition of occupied population of that country shifts from that in which the population occupied in agriculture constitutes the larger part of the occupied population to that in which the proportion of the population occupied in manufactures and minings is large, and then to that in which that of the population occupied in so-called "service industries" which include commerce, transport, liberal professions and public services with the increase of population.

For instance, in Greate Britain in 1696 when the population in this country was only 5.5 million the proportion of the population occupied in agriculture was 69.6 per cent and that of the population occupied in manufactures and commerce was only 20.4 per cent. In 1811 when the population in this country had increased to 10 million the proportion of the population occupied in agriculture had decreased to 35 per cent. In 1842 when the population in this country had increased to 19 million the proportion of the population occupied in agriculture had decreased to 22 per cent, that of the population occupied in manufactures and minings had increased to 44.7 per cent and that of the population occupied in "service industries" had also increased to 32.6 per cent. And in 1931 when the population in this country had increased to 35 million the proportion of the population occupied in agriculture had decreased to only 6.4 per cent, that of the population occupied in manufactures and minings had increased to 43.9 per cent and that of the population occupied in "service industries" had also increased to 49.7 per cent.

Such a development is found also in United States, Germany and Japan. In United States of America in 1820 when the population in this country was only 9.6 million the population occupied in agriculture was 72.3 per cent, that of the population occupied in manufactures and minnings was only 14.6 per cent, and that of the population occupied in "service industries" was also only 12.8

per cent. In 1880 when the population in this country had increased to 50 million the proportion of the population occupied in agriculture had decreased to 49.4 per cent, that of the population occupied in manufactures and minings had increased to 25.5 per cent, and that of the population occupied in "service industries" had also increased to 25.5 per cent. In 1935 when the population in this country had increased to 13 million the proportion of the population occupied in agriculture had decreased to 25.4 per cent, that of the population occupied in manufactures and minings had increased to 28.8 per cent, and that of the population occupied in "service industries" had also increased to 45.8 per cent.

In Germany in 1820 when the population was 26 million the proportion of the population occupied in agricluture was 78 per cent. In 1882 when the population had increased to 46 million the proportion of the population occupied in agriculture had decreased to 42.2 per cent, that of the population occupied in manufactures and minings had increased to 33.5 per cent, and that of the population occupied in "service industries" had also increased to 33.5 per cent. In 1933 when the population in this country had increased to 66 million the proportion of the population occupied in agriculture had decreased to 28.9 per cent, that of the population occupied in manufactures and minings had increased to 39.4 per cent, and that of the population occupied in "service industries" had also increased to 52.7 per cent. In Japan also in 1882 when the population in this country was 37 million the proportion of the population occupied in agriculture was 83.7 per cent, that of the population occupied in manufactures and minings was 4.8 per cent, and that of the population occupied in "service industries" was 10.1 per cent. In 1940 when the population had increased to 73 million the proportion of the population occupied in agriculture had decreased to 43.7 per cent, that of the population occupied in manufactures and minings had increased to 2.7 per cent, and that of the population occupied in "service industries" also had increased to 23.6 per cent.

II

Such shifts in the industrial composition of population may be said to be the causes and effects of the increase of the productivity of labour.

One of the explanations for the reason why such shifts in the industrial composition of population takes place with the increase of population is that set forth by F. Oppenheimer. He explains such shifts from the fact that the production in manufacture is subject to the Law of Increasing Returns while the production in agriculture is subject to the Law of Diminishing Returns.

According to his argument, "in any manufacture in which the production is subject to the Law of Increasing Returns the productive power employed in it becomes more and more prolific, in other words, the average returns of each unit of labour becomes more and more larger with the development of division of labour". Hence in manufactures the prices of their products always oscillate around the declining exchange value and their socially necessary value that is the base of each local market value is in the long run the production price of the best equipped enterprise. On the other hand, in any agriculture in which the production is subject to the Law of Diminishing Returns the price of its product oscillates as a rule around the rising exchange value expressed by the product of manufacture and its socially necessary production value that is the base of its each local market value is in the long run always the production value of the worst equipped enterprise.

His theory of "urbanisation" that is deagralisation is founded on this theory of "polar opposition" in price formation of the product of manufacture and that of the product of agriculture.

According to his argument, the productivity of urban peoples increases more rapidly than that of agrarian peoples because the increase of productivity of the latter is checked by the Law of Diminishing Returns. Hence the economic pressure tendes to lower more rapidly in the non-agriculture than in the agriculture, as the rise in productivity implies the lowering of economic pressure. However this tendency cannot be realized because when the freedom of residence is guaranteeded the competition tendes to adjust all pressures by means of absorbing new labour-force into the most profitable section of production. Therefore when the both natural increases of agrarian and urban peoples are equal, a certain amount of urbanization of population is a necessary phenomenon in the progressing society.

Moreover this urbanization of population at the same time lowers the price of manufactures expressed by the raw product or, what is the same thing, raises the price of raw product expressed by the product of manufacture. This rise of the price of raw product makes it economically possible to occupy the unutilized land. Hence a certain amount of "occupation of unutilized land" is a necessary phenomenon in the progressing society.

But this Oppenheimer's theory may be said, as indicated by P. Quante, as the theory which neglects the rigidity of the demand for product of agriculture different from the elastic demand for product of manufacture.

According to this Quante's theory, "the lowering of the price of product of manufacture in one or some sections of manufacture leads in the first place to a increase of consumption of these products, then further, as a result of the reaction on other sections of manufacture, also to a increase of the consumption of the products of those sections, because that part which has been made free through that lowering of price henceforth can be applied to the needs for which have been hitherto not regarded at all or sufficiently. Moreover this expansion of demand in consequence of technical progress in manufacture counter-acts also the well-known "setting free of workers" which had been caused at first through the capitalism, because it allows to the labour-forces which had been set free the new opportunity to work in the production of consumption goods or production goods.

(Theory of overcompensation)

This expansion of satisfaction of needs caused by the lowering of prices of products of manufacture is in general possible because the needs which are to be satisfied are in principle unlimited in number and intensity. So for example, when the price of silk stockings has lowered the consumption of silk stockings can become double, triple—at any rate at pleasure can be multiplied, when the price of automobile has lowered is alike etc. Whether the consumption of the concerned good increases just in proportion to that lowering of its price or this consumption increases only in lesser (in exceptional cases also larger) quantity but in place of it the consumption of other goods newly or in larger quantity takes place—this dependes on the total "system of needs" of the population and its members.

The situation of the raw products which serve the need for nourishment is opposed to this. The need for nourishment is in principle different from all other needs through the fact that it cannot increase at pleasure. The need for nourishment can not increase over the satisfaction which had been once reached.

Hence the following situation arises for the production of agriculture: When the population remaines the same, the competition between some favoured farmers and less favoured ones arises through the technical progress which allows some favoured farmers a increase of production at sinking price with the aim and result of excluding the less favoured. When the population is growing certainly the additional demand for food must be got at the rising price and that whether on the old, if this is more advantageous, on the new occupied land, so long as no betterment of agricultural technique or conditions of communication takes place. But if this is case, then here finally the point on which the additional production outweighs the additional demand at the sinking price can be reachd. Here the difference between the product of manufacture and that of agriculture makes its appearance: In manufactures the production can be founded newly on the base of sinking price in a enlarged scale. In agriculture the sinking of price leads not to a expansion of production (over the hither-to total needs!) but only to a exclusion of surplus people.

Hence in opposition to the theory which is represented by Oppenheimer, the increase of productivity of agricultural labour can not lead to a increase, its decrease to a decrease, of agricultural population, but the relation is revers. A relative—measured on the development of population—increase of its productivity makes the number of farmers decrease, a relative decrease makes it increase. Because the demand for food—after the satisfaction has been reached—does not increase more than the increase of population, when the productivity increases it will be unrentable for a part of farmers to carry on the agriculture. For the over-supply of food for which a sale is in no way possible makes the price soon sink and excludes the most weak competiter from market. Unlikely as in manufactures, the concerned farmer can not be protected against this effect also through a sinking of the cost. Here any lowerning of cost which gives to the individual farmers the opportunity to produce more than correspondes to the development of population, or in general allows the new business (or the enlarged business) over this demand enter into the competition struggle must reduce significantly the possibility to earn for the whole farmer class."

III

This theory of Quante is certainly sound in the explanation of the reason why the proportion of the population occupied in agriculture has lowered with the increase of population, but does not explain the reason why the proportion of the population occupied in manufactures and minings does not rise unlimited, but in place of it the proportion of the population occupied in "service industries" rises with the rise of productivity of labour. This cause may be ascribed to the fact that as the proportion of the population occupied in agriculture is conditioned by the rigidity of the demand for its product, so the growth of agriculture and manufactures is conditioned by the growth of "service industries".

To begin with, in regard with the commerce and transport which constitutes the most large part of "service industries" the growth of these industries is the essential condition for the growth of productivity in agriculture and manufactures.

It is a wellknown fact that a division of labour which is a fundamental principle of modern economy increases the productivity of labour. However in order to raise the productivity of labour by means of realizing the advantage of division of labour, it is necessary that the demand for any kind of product is not only massive and uniform but also stable and lasting. Firstly because when the demand for that kind of product is not massive and uniform any specialized man or machine, apparatus and plant etc. can not be employed gainfully. Then because when the demand for that kind of product is fluctuating and not stable, any specialized man or machine, apparatus and plant etc. is not employed all the time to the full. Lastly becuase the demand for that kind of product, even if not only massive and uniform but stable, not lasting and for short time, any man or machine, apparatus and plant etc. will be not employed during its life time. In these cases not the advantage but the disadvantage will be realized.

Needless to say, in order to raise the productivity of labour which depends on the largeness of such a massive, uniform, stable and lasting demand, it is necessary, as Adam Smith indicated, that the extent of market is large. Hence the larger the extent of market, the more the advantage of division of labour is realized and by means of it the more the productivity of labour increases. It needs no explanation that this enlargement of market necessitates the development of transport and commerce. Therefore the development of transport and commerce is a essential condition for the increase of productivity of labour. The more transport and commerce developes the more the advantage of division of labour is realized and by means by it the productivity of labour increases.

The same thing holds good for other industries which is included in "service industries". The development of financial business is a condition for the increase of productivity of labour, in the sense that the development of transport and commerce as well as the improvement of machine, apparatus and plant etc. in manufactures and agriculture on which the increase of productivity of labour dependes, needs the money. It is also evident that the educational, medical and health services increase the productivity of labour by means of its promoting the technical ability and health. Finally, the public services also contribute to the increase of productivity of labour indirectly by means of its cotribution to the maintenance of this national system of division of labour. It is due to these facts that the proportion of the population occupied in "service industries" has grown with the increase of productivity of labour. Hence this proportion may be said to be the index of the increase of productivity of labour.

IV

If this argument is sound, then above mentioned fact that the proportion of the population occupied in "service industreis" has grown with the increase of populatin proves that in fact the productivity of labour has risen with the increase of population.

One theory on what effect has a increase of population on a productivity of labour is that represented by Malthus and Ricardo which maintaines that "returns" that is the productivity of labour decreases with a increase of population. Malthus argues as follows.

"At the commencement of the cultivation of fertile country by civilized colonists, and while rich land was in great plenty, a small portion only of the value of the produce would be paid in the form of rent. The productiveness of labour being great, if nearly the whole were divided between wages and profits, the labourers might obtain a large quantity of produce, while a sufficient proportion of the whole might be left to yield large profits, and wages and profits would both be high at the same time.

As the society continued to increase, if the territory were limited, or the soil of different qualities, it is quite obvious that the productive powers of labour applied to the cultivation of land must gradually diminish: and as a given quantity of labour would yield a smaller and smaller return, there would evidently be a less and less produce to be divided between labour and profits.

If, as the powers of labour diminished, the physical wants of the labourer were also to diminish in the same proportion, then the same share of the whole produce might be left to the capitalist, and the rate of profits would not necessarily fall. But the physical wants of the labourer remain always the same: and though in the progress of society, from increasing scarcity of provisions compared with labour, these wants in general less fully supplied, and the corn wages of labour gradually fall: yet it is clear that there is a limit, and probably at no great distance, which cannot be passed. The command of a certain quantity of food is absolutely necessary to the labourer in order to support himself, and such a family as will maintain merely a stationary population. Consequently, if poorer lands which required more labour were successively taken into cultivation, it would not be possible for the corn wages of each individual labourer to be diminished in proportion to the diminished produce: a greater proportion of the whole would necessarily go to pay the wages of labour: and the rate of profits would continue regularly falling till the accumlation of capital had ceased.

In the meantime, it will be asked, what becomes of the profits of capital employed in manufactures and commerce, a species of industry not alike that employed upon the land, where the productive powers of labour necessarily diminish: but where these powers not only do not necessarily diminish, but very often greatly increase?

In the cultivation of land, the causes of the necessary diminution of profit is the diminution in the quantity of produce obtained by the same quantity of labour. In manufactures and commerce, it is the fall in the exchangeable value of the same amount of produce.

The labour required to produce corn has a constant tendency to increase from inevitable physical causes, while the labour required to produce manufactures and articles of commerce sometimes greatly diminishes, sometimes remains stationary, and at all events increases much slower than the labour required to produce corn. When, therefore, profits fall in agriculture it becomes obviously advantageous to employ capital in manufactures and commerce than on the land: and capital will in consequence be so employed till a fall has taken place in manufactures and commercial products from their comparative abundance. But it has been shown that the value of the same quantity of labour will always remain the same; and it is evident, that if the products fall in value, while the quantity of the labour, or the value of the capital required to produce them, remain the same, profits must fall. It is further evident, that this fall must necessarily go on, till profits in manufactures and commerce have been reduced nearly to a level with these in agriculture. And thus it appears that in the progress of improvement, as poorer and poorer land is taken into cultivation, the general rate of profits must be limited by the powers of the soil last cultivated. If the last land taken into cultivation will only yield a certain excess of value above the lowest value of the capital necessary to produce it, it is obvious that profits, generally, cannot possibly be higher than this excess will allow".

This theory is, as indicated by F. Oppenheimer, inconsistent with the above mentioned fact that the proportion of the population occupied in agriculture has been falling with the increase of population. He maintains that the effect of the Law of Diminishing Returns due to the increase of population in fact has over-compensated that of the Law of Increasing Returns due to alike the increasement of population. He argues as follows.

"The annual dividend has increased with the increase of population density. This is evident from the fact that the number of farmer has decreased in proportion while the number of manufacturer and merchant has increased with the increase of the population of civilized nations. Because, as indicated by Malthus, "the surplus product of farmers in its most wide meaning measures and limites the growth of that part of society which is not employed on land, so that the number of manufacturer, merchant, man of property and man of various cultural professions must be proportional just to this surplus product throughout the world". If the population of a country were 5 million of which 80 per cent were non-farmers and 80 per cent were farmers and if the population of that country had increased to 10 million after a certain years, then if the Law of Diminishing Returns had effect, the proportion of non-farmers must decrease. Namely in above mentioned case, in the first stage four farmers could support one non-farmer. But if the Law of Diminishing Returns had effect, when the population had increased to 10 million, since the total returns increase but not in the same degree as the labour hour employed on those, there are two farmers in spite of one in the former time and returns of both farmers are larger than the half of those in the former time, but the total returns of the farmers are not twice as large as those in the former time. As the surplus product which remaines after the two farmers had reserved for their needs is less than that in the former time, only less non-farmers per one farmer can live on it. Therefore it is evidently only possible when the surplus product per one farmer grows from the one time to the other time in spite of the increase in their number, that is, when the effect of the Law of Diminishing Returns has been not only compensated but over-compensated."

V

The effect of the increase of population on the productivity of labour in the times when the national economic division of labour does not nearly prevail in consequence of prevalence of the self-sufficient house economy is very different from that in the times when such a self-sufficient house economy had been destroyed and in place of it the national system of division of labour had been establised through the industrial revolution.

We had indicated that the advantage of division of labour is the increase of the productivity of labour. Hence in the times when the national division of labour does not nearly prevail, the productivity of labour is not only by nature low but, as insisted by Malthus and Ricardo, decreases with the increase of population, because in such times not the Law of Increasing Returns due to the division of labour but only the Law of Decreasing Returns takes effect. In such times since, needless to say the housing and clothing, the food is insufficient the death rate is always extraordinarily high and the natural increase of population is, as indicated above, very slow and fluctuating in spite of very high birth rate.

On the other hand, in the times when such a self-sufficient house economy had been destroyed and in place of it the national system of division of labour had been established, as insisted by Oppenheimer, the increase of population increases the productivity of labour. Because in such times it promotes the realization of the advantage of division of labour and at the same time stimulates the production by means of increasing the effective demand by promoting the capital investment.

We indicated above that the increase of the productivity of labour by means of the realization of the advantage of division of labour requires that the demand for a kind of product is massive, uniform, stable and lasting. It is evident that, as the largeness of such demand dependes on the largeness of population, with the increase of population the productivity of labour increases by means of the realization of the advantage of division of labour. Needless to say, the increase of demands for products does not necessarily only on the increase of population. When the real income per head increases, even if the population does not increase, the amount of demand increases. But such demand as increased due to the increase of the real income per head is not, as a rule, so massive, uniform, stable and lasting as such demand as increased due to the increase of population. We may say in this sense that the increase of population promotes the productivity of labour.

Moreover the increase of population promotes the productivity of labour also by means of its promoting the capital investment. As indicated by Keynes, while the value of output is equal to the income in the whole society, the income as a rule is not expended in full but a part of it is saved. Hence unless the saving is outlaied for the investment in full, the output can not be sold by that amount of saving which is not outlaied for the investment and consequently the output will decrease by that amount. Now in order to be outlaide the saving for investment, it is necessary that the consumption is expected to grow at least during the life of that investment, because the investment dependes not only the rate of interest, but especially, on how much the output which will be added by that investment is expected to be sold during the life of that investment. The increase of population increases the consumption outlay and at the same time promotes the investment by means of its giving the expectation that it makes the consumption outlay increase for a long future. In this sense also we may say that the increase of population promotes the productivity of labour.

Certainly against this argument may be argued that the increase of population is not the only factor to promote the investment, that the rise of the level of real income has more importance for the promotion of investment than the increase of population, that, for instance, the capital investment in the automobile factory is attractive when the population remaines the same but the level of real income so much rises as the portion of it which is able to buy a automobile grows, as well as when the population is expected to increase but the level of real income remains the same, that there is besides the capital investment due to such a change in the demand also that combined with changes in technique, that if the rate of interest lowers, the capital investment takes place in order to raise the proportion of capital to labour.

However the fact that, as indicated above, the productivity of labour has been increasing with the increase of population implies that the level of consumption has been rising with the increase of population. Hence it can not be scarcely expected that when the population remaines the same, the same amount of capital investment as that due both to the increase of population and the rise of the level of consumption accompanied with it takes place, unless the drastic measures to promote the consumption such as the redistribution of income are introduced. Therefore when the population does not increase the increase of consumption must be less by the additional increase due to the increase of population and the rise of level of consumption accompanied with it than that when the population increases. And as a result of it when the population does not increase the new capital investment has to be less than that when the population increases.

Moreover, as indicated above, the rise of the productivity of labour due to the rise of the proportion of capital to labour can take place only when the demand for a kind of product is massive, uniform, stable and lasting. Hence when the population does not increase the new investment due to the rise of the proportion capital to labour is also difficult to take place. Because the additional demand due to the rise of the level of consumption which is by nature is that for the luxuries or semi-luxuries is not massive, uniform, stable and lasting. In this sense we may say that the increase of population promotes both the production and the productivity of labour by means of its promoting the consumption and the new capital investment.

ON THE COST FACTORS IN THE LOCATION THEORY OF INDUSTRY

——Principle of Approach and Non-Approach——

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I. *Forces Factors and Cost Factors of Location*

Why does a certain industry orient towards a particular geographical-point and locate itself there? And why do similar or different industries agglomerate or deglomerate in particular regions? According to Alfred Weber, it is due to "the forces (*Kräfte*) which operate as economic causes of orientation, i.e., *the location factors* (*Standortsfaktoren*)."[1] These forces correspond to such natural factors as climate, topography, geology, and natural resources, which are the subjects of discussion in the economico-geographical location theory, and to such social factors as labor, capital, transportation, technology, and the cultural level. Weber maintains on the other hand that "*Location factor is an advatage* (*Vorteil*) which arises at a particular geographical-point or widely at such points where economic activities take place...and the *advantage* is nothing but a saving of *costs* (*Kosten*)"[2] and that "location factors are cost advantage (*Kostenvorteil*) to be strictly distinguished from other advantage because of their nature, that is, they pull a given industrial manufacturing process here and there."[3] Apparently Weber views location factors as forces on one hand and as cost factors on the other.

This is not all. In his opinion, climate, especially the atmospheric humidity, prescribes location by causing machines to gather rust and thereby increasing depreciation cost;[4] the natural conditions of a region prescribe location as they affect transportation cost;[5] population density and the degree of civilization prescribe location as they influence the distance between the location figure and the labor place (*Arbeitsplatz*);[6] and technological development prescribes location by affecting the labor coefficient.[7] Thus Weber views the operation of all forces factors in the light of cost factors while always relating cost factors closely with forces factors in location. According to this view, such forces factors as coldness and snow in Hokkaido, for instance, do not simply prevent location but they increase capital expenditures for things like coal storage equipment and cold proof structures, hence interests and depreciation cost; indirect manufacturing cost such as factory heating cost; and labor cost like cold region allowances, thus interfering with location by raising the manufacturing cost as a whole and decreasing profit.

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[1] A. Weber, *Ueber den Standort der Industrien*, Erster Teil, *Reine Theorie des Standorts*, 1909, S. 15–16. (To be abbreviated *Reine Theorie* hereafter.)

[2] *Reine Theorie*, S. 16.

[3] A. Weber, *Industrielle Standortslehre*, Grundriss der Sozialökonomik, VI. Abt., 1914, S. 57. (To be abbreviated *Grundriss* hereafter.)

[4] *Reine Theorie*, S. 30.

[5] *Reine Theorie*, S. 42.

[6] *Reine Theorie*, S. 114–115.

[7] *Reine Theorie*, S. 117.

First, this method may be worthy of attention in the sense that it makes the standardized, quantitative measurement of the heterogeneous action of heterogeneous forces factors on location possible. The only common criteria for standardized quantification will be, at this stage of history, cost and profit which can be expressed in monetary units. Secondly, This method may merit attention in the respect that it enables us to clarify the various concrete forms which agglomeration advantage (*Agglomerationsvorteil*) and contact advantage (*Fühlungsvorteil*) may take and in that it also enables us to put the theory of agglomeration and deglomeration on the basis of measurement. Greenhut's theory of agglomeration[8] may be worth notice as a step forward in this direction. Thirdly, the method may deserve attention in the sense that it gives a quantitative quality to the traditional economico-geographical location theory which tends to devote itself to the mere enumeration and discussion of forces factors, and in that it provides a fundamental key to the propelling of the modernization of economic geography in general.

II. *Stages of Industrial Activities and Cost Factors*

Edgar. M. Hoover divides the activities of a productive enterprise[9] into the following three stages. (a) *Procurement*...purchasing and bringing the necessary materials and supplies to the site of processing; (b) *Processing*...transforming the materials into more valuable forms (products); (c) *Distribution*...selling and delivering the products.[10] The following Profit and Cost Factor Table has been prepared according to this division to show the relationships among the stages of industrial activities, cost factors and prices.

Weber's division of stages is almost the same as Hoover's, the only difference being that Weber uses four divisions with a stage—"Procurement of locational

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[8] M. L. Greenhut, *Plant Location in Theory and in Practice: The Economics of Space*, 1956.

[9] What Hoover terms *productive enterprises* include not only manufacturing industries but also extractive industries such as mining and farming, and commercial enterprises involving simple processing like holding goods and dividing them into small lots or different assortments. E. M. Hoover, *The Location of Economic Activity*, Economics Handbook Series, 1948, p. 7. (To be abbreviated *Handbook* hereafter.)

[10] *Handbook*, p. 7.

Profit and Cost Factor Table

Stage of industrial activities	Cost factor				Price	
Procurement	Production cost(4) (wide sense)	Material cost (wide sense) [Procurement cost of materials]	Material cost (narrow sense)	(1)Extraction cost of materials	Price of materials at the source	Procurement(2) price of materials
				(General administration & selling cost)		
				(Profit)		
			Fuel cost	(1)Transfer cost of materials		
Processing		Processing cost		Labor cost		
				Electric-power cost(3)		
				Rent		
				Interest		
				Depreciation cost		
				Repairing cost		
				Outside processing cost		
				Water cost		
				Communication cost		
				Tax		
				Other factory expenses(5)		
				Manufacturing cost (Factory cost)		
Distribution		Distribution cost		Transfer cost of finished product		
				General administration and selling cost		
				Total cost	Delivered price of finished product	
		Profit				

(1) Includes fuel.
(2) This is a delivered price of materials from the standpoint of enterprise providing raw materials.
(3) See footnote 28.
(4) Production cost in a narrow sense as against in a wide sense includes all costs but the transfer costs of materials and manufactured product.
(5) Includes insurance, building rent, machinery rent, patent right rent, laboratory and research expenses, and miscellaneous factory expenses.

site (*Standortsstelle*) and establishment of fixed capital (material)"[11]—added before that of procurement of raw materials. With regard to the procurement of locational site, land values repell or pull location as they increase or decrease interest costs in proportion to the increase or decrease in capital. Where land is rented, the rent repells or pulls location as it increases or decreases rent cost. With regard to the establishment of fixed capital, the expenditures for establishing fixed capital such as buildings, structures, machinery, and equipment, repell or pull location as they increase or decrease costs by yielding interests on loaned capital while being transformed gradually into production cost as depreciation cost. It is clear from above that these pose no particular problem since every one of the costs in what Weber calls the first stage is listed in the Table of Cost Factors given above. In the final analysis, the difference between Hoover's and Weber's division is whether to apply an *ex post* view or an *ex ante* view with an initiation of production process as a starting point. Inasmuch as interest, rents, and depreciation cost, can be estimated for comparison prior to the selection of a location site, Hoover's three-stage-division seems adequate.

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[11] Weber's four divisions are: "(1) Procurement of a location site (land as a location place) and the establishment of fixed capital (material) (2) Procurement of materials for processing (raw materials and auxiliary materials or half products) (3) Process of transforming materials (4) Sending out of finished products," (Reine *Theorie*, S. 24.). In *Grundriss*, S. 58, Weber explains the second stage as "Procurement and the regular bringing in of materials for processing and of power materials."

Although the above Table of Cost Factors has classified and listed cost factors from the standpoint of manufacturing industries which procure and process raw materials and sell finished products, the Table can be applied also to a case where processing is divided into more than two stages and where each stage is carried out by an individual industry independently. This is because the industries of the second stage either procure for processing half-materials[12] from the industries of the first stage and sell finished products, or sell such products as half materials to the industries of the next stage. The difference lies after all in the degree of processing and in the nature of market, that is, consumers' market or producers' market.

Greenhut has recently introduced an idea of *cost-reducing factors*[13] mainly in the way of explaining locational agglomertion and deglomeration. These factors may be expected to reduce any of the costs given in the Table of Cost Factors, and, therefore, the process of their operation can be traced in the Table.

Next, electric-power (cost) has been either included in material and power costs,[14] or lumped together with fuel and power (costs),[15] or merely brought under the category of power with fuel,[16] or has not been recognized fully as the most important location factor (cost factor) next to materials, fuel, and labor power.[17] However, in view of its uniqueness as a restricting factor of location as well as its general importance, electric-power cost was listed as an independent cost factor, while fuel cost was included, from its nature of locational restriction, in the *material cost in a wide sense*, which in turn was divided into fuel cost and the *material cost in a narrow sense* so that the substitution relation between fuel and electric-power may be shown.

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[12] Ohlin calls semi-manufactured goods and semi-manufactured machinery half materials. (B. Ohlin, *Interregional and International Trade*, 1933, p. 190.) Hence finished parts used in assembly industries are half materials.

[13] M. L. Greenhut, *op. cit.*, pp. 163–177.

[14] *Reine Theorie*, S. 29. *Grundriss*, S. 58.

[15] N. J. G. Pounds, *An Introduction to Economic Geography*, 1951, pp. 179–180. M. L. Greenhut, *op. cit.*, p. 280.

[16] B. Dietrich, *Wirtschaftsgeographie: Methoden–Probleme-Anregungen*, 1933, S. 81. P. H. Schmidt, *Einführung in die allgemeine Geographie der Wirtschaft*, 1932, S. 207–209.

[17] M. L. Greenhut, *op. cit.*, pp. 123–139. E. M. Hoover, *Location Theory and the Shoe and Leather Industries*, Harvard Economic Studies, Vol. LV, 1937, pp. 75–88. (To be abbreviated *Location Theory* hereafter.) Hoover discussed in the chapter on 'the theory of location again' the substitution relation between coal and electric-power and the effect of electric-power on location (*Location Theory*, pp. 292–293). *Handbook*, Part I and pp. 180–184.

Profits will be touched upon next, though they are not the main subject of this article. When a given industry extracts materials by itself, there will be no profit involved at the stage of procurement, but when the industry uses purchased materials, as Weber points out, profit is involved in material cost as a cost factor which varies locally, and becomes a location factor.[18] Maintaining that profit constitutes an element of capitalistic economy and not of pure economy (*reine Wirtschaft*), however, Weber does not take profit into consideration.[19] Weber also ignores profit in the stage of distribution on the contention that such profit can never become a locational factor as it is not cost factor but result from pricing.[20] Excepting a few like August Lösch,[21] Я. Г. Фейгин,[22] M. L. Greenhut,[23] and W. Isard,[24] all the location theoreticians after Weber have also ignored profit in the distribution stage or placed it off the focus of study. If one of the purposes of location theory is to clarify the economic laws of location in a capitalistic and socialistic economy, the problem of profits is to become a central point in location theory.

III. *Locational Features of Transfer Costs, Production Costs, Material Costs, and Processing Costs*

First, the concept of these costs may be defined for clarification. The term transfer costs, coined and introduced into location theory by Bertil Ohlin,[25] is more comprehensive than the term transportation costs. According to Ohlin, transfer costs include ordinary transportation costs as well as all other costs that are necessary for overcoming other obstacles to the regional movement of commodities. The obstacles are (1) The reduction in quality and value of easily spoiled goods through transportation, (2) great distance from the market, with the consequent lack of intimate contact with customers, and (3) duties on imports and exports.[26] This article follows Ohlin's concept but it must be noted that, strictly speaking, transfer costs include freight which changes considerably in direct relation to the distance to be covered, packing costs which vary to some degree in relation to distance, and the expenses like loading and unloading cost, junction charge, storage fees, and duties which are not affected by distance. Since freight costs ordinarily occupy a major part of transfer costs, it may safely be said, while noting the above, that transfer costs change in close relation to distance in general.

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[18] *Reine Theorie*, S. 28.
[19] *Reine Theorie*, S. 28–29.
[20] *Reine Theorie*, S. 28.
[21] A. Lösch, *Die räumliche Ordnung der Wirtschaft*, 1940, S. 30–31.
[22] Я. Г. Фейгин, Размещение Производства при Капитализме и Социализме, 1954, стр. 113–114.
[23] M. L. Greenhut, *op. cit.*, pp. 84–100.
[24] W. Isard, *Location and Space-Economy*, 1956, pp. 196–197, 221.
[25] *Location Theory*, p. 39. *Handbook*, p. 8, footnote 4.
[26] B. Ohlin, *op. cit.*, pp. 210–211, 142.

Processing costs and production costs are often confounded and their concepts are not always standardized. According to Hoover, "Processing costs approximate what the census calls *value added by manufacture* for a manufacturing establishment—the difference between cost of materials (including fuel and purchased energy) and value of the finished product at the place of production. Processing costs include direct labor costs, costs of administration, interests, rents and royalties, maintenance and depreciation, and taxes."[27] Hoover apparently does not include material costs in processing costs. As it will become clear later, this view is reasonable since material costs have a locational character different from that of processing costs. It appeares that by purchased energy cost be meant electric-power[28] cost, but it is not reasonable to include this in material costs. It is because the manner in which *weight-commodities* like materials and fuel and a *non-weight-commodity* like electric-power pull location is quite different, and the character of electric-power costs from the locational view-point is similar to that of cost factors such as labor costs, rents, and depreciation costs comprising processing costs. It is reasonable, therefore, to include electric-power costs in processing costs.

Now Greenhut defines that "processing costs (production costs) include all costs other than the transportation charges on materials and finished product."[29] This view confuses processing costs with production costs and seems in content to be defining the concept of production costs. Lösch and Hoover do not define the concept of production costs as such but the former using the term freight (*Fracht*) and the latter, the term transfer costs, both of them interpret production costs as all costs other than freight or transfer costs and use the term in that sense.[30] As mentioned previously, however, the concept of transfer costs is superior in that it is inclusive of all costs involved in transfer, and, therefore, Hoover's view will be used in this article. In other words, production costs are defined here to include all costs other than transfer costs of materials (including auxiliary materials), fuel, and the finished product, or exclude, quantitatively speaking, all transfer costs from the total cost of the finished product.

J. Harry Jones defines the term production costs, from the standpoint of location theory, as inclusive of all costs involved at each stage of procurement, processing, and distribution.[31] This is what is usually termed production costs in economics and the definition is particulary needed where the problem of profits is to be studied from the view-point of location theory. From this point of view, if what excludes transfer costs could be called *production costs in a narrow sense*, what includes transfer costs might be called *production costs in a wide sense*. In this article, the term production costs means the one in a narrow sense.

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[27] *Handbook*, p. 67.

[28] Besides fuel and labor power, there are energies like electric power (including atomic energy generated electric power), hydraulic power (including tidal power and hydraulic pressure), wind power, compressed air, solar heat, terrestial heat, and animal power but the most overwhelmingly important purchased energy in modern times is electric power.

[29] M. L. Greenhut, *op. cit.*, p. 124.

[30] A. Lösch, *op. cit.*, S. 29–30, 172–173. *Location Theory*, pp. 36, 73–88. *Handbook*, p.8.

[31] J. Harry Jones, *The Economics of Private Enterprise*, 1948, pp. 82–83.

On the subject of material costs next, these are procurement costs of material including extraction costs of materials and fuel, or the prices of materials and fuel at the source, plus transfer costs involved in each case.

It was Weber and Hoover who mutually supplemented each other in making a significant contribution to the study of locational features of transfer costs and production and processing costs. At the same time, however, both made a similar error as Weber reduced material price differentials into transportation cost differentials and as Hoover resolved labor costs into transfer costs. With regard to sources of materials where the price of materials (including fuel) differs, Weber assumes that "the source of materials where the materials price is low is closer to a location site to be chosen (*möglicher Standort*) and the source where the materials price is high is farther from a location site to be selected."[32] Thus he reduces materials price differentials into transportation cost differentials on the contention that "a differential in the materials price may be expressed ideally as a differential in transportation cost and thus may be fitted into theory (note: transport-orientation theory)."[33] This method has two shortcomings; first, Weber tries to reduce prices into distance or transportation costs but the distance between what? It must start from a location site and extend towards a materials source. This direction is decided pending the selection of a location site and, therefore, cannot be decided before a site is decided. Accordingly, one or more apexes of a location figure are unknown and the figure cannot be formed. Weber says "a location site to be selected" and this means making a location figure with a hypothetical location site. Inasmuch as a location figure is made for the purpose of selecting a location site, Weber's hypothesis is meaningless in the light of the strictness Weber demands. Thus Weber incurred a contradiction similar to that of reducing the distance-tapering-freight-rates into the shortening of distance.[34] Secondly, what Weber means by the materials price is the price at the source which constitutes one of the cost factors comprising production costs. While transportation costs do change in response to changes in distance, however, prices at the materials source do not. In other words, the costs of transporting materials continuously decrease, though gradually step by step, as a location approaches the source of materials, but prices at the materials source essentially have no relation to the approaching of location towards the materials source. Therefore, the locational pull of transportation costs is *approaching*, whereas that of prices at the materials source is *non-approaching*. Where an industry extracts materials by itself, prices at the materials source are replaced by material extraction costs whose pull is also *non-approaching*. Weber's weakness lies in that he reduced material price differentials into transportation cost differentials, thus wiping out the difference of their locational character and setting the problem of *non-approach* as that of *approach*. This will be made all the more clear by the following study.

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[32] *Grundriss*, S. 59. In *Reine Theorie*, it is stated that "the place where prices are low is, as it were, far, and the place where prices are high is, as it were, near, if it is to be used for productive purposes (*Produktionsverwendung*)" (S. 33). Productive purposes mean use in a location or a facory, and, therefore, this statement may be interpreted to mean the same thing as the statement in *Grundriss*.

[33] *Reine Theorie*, S. 86–87.

[34] T. Aoki, "Measurement of Tranport-orientation of Industrial Location by Ideal-weight Calculation Method,—An Economic Geographical Reformation and Application of Weber's Theory of Transport-orientation" (in Japanese), *Annals of the Association of Economic Geographers*, published by the Association of Economic Geographers, Meiji Univ., Tokyo, Vol. 1, 1954, p. 41.

Since other cost factors comprising production costs have a locational feature similar to that of prices at the materials source or material extraction costs, the above study may be expanded on the difference between production costs and transfer costs in locational features. Whereas the locational pull of transfer costs is *approaching*, the pull of production costs is *non-approaching*, and "the basic difference between the locational effects of transfer costs and production costs must be clearly appreciated"[35] and "production-cost advantages...have nothing to do with transfer costs."[36] Accordingly, if transfer costs are uniform regardless of a location place, or "if both materials and markets can be regarded practically as ubiquities, then location becomes purely a mattter of comparative production costs,"[37] or conversely if production costs are uniform leaving no production cost differential, then location becomes a problem of genuine transfer costs, or that of approach alone. Therefore, transfer costs and production costs cannot be mutually dissolved into each other, and actual location generally takes place at a point where a minimum production cost (in a wide sense) is obtainable, the other profit-restricting conditions being uniform, through the competition between production costs and transfer costs.

If Weber's method is to be opposed and if material price differentials at the source are not to be reduced into transportation cost differentials, how should the question of material price differentials be treated? Apparently the solution must take a form of competition between prices at the materials source and transfer costs. To study the problem, the following *isodistance-lines method* (*distance-base contour-line method*)[38] will be used. Inasmuch as the same thing can be said of material extraction costs, the following will deal only with the study of prices at the materials source, and all the other production costs will not be dealt with in order to simplify the study of this problem. The figure is a reduced scale map showing the distribution of railways connecting a consumption place K with materials sources M_1, M_1', M_1'', M_2, M_2'. In this case, two kinds of materials m_1 ton (its competing sources are M_1, M_1', M_1'') and m_2 ton (its competing sources are M_2, M_2') are required for manufacturing one ton of product. The Gothic style figures attached to each materials source indicate the prices of materials at the source in the required amount of m_1 ton and m_2 ton, respectively. Needless to say, the decision of a minimal total transfer-cost point is not the subject of discussion here but the competition between the price of materials at the source and total transfer costs is the point of discussion.

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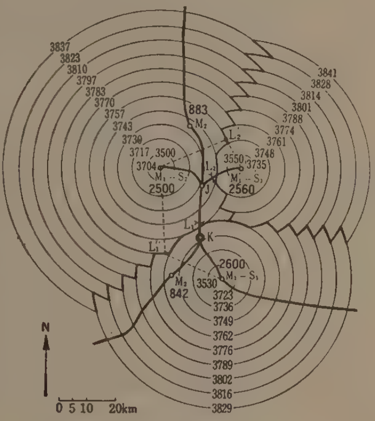
[35] *Location Theory*, p. 76.

[36] *Location Theory*, p. 77.

[37] *Location Theory*, p. 87.

[38] This method, devised by the author of this article, attempted to make locational analysis more realistic through the use of a scaled distance system for the freight rate table for railways and trucks as a base. Hoover's contour-line method, on the other hand, uses a certain amount of freight as a base and thereby increases the distance between contour lines. cf. *Location Theory*, pp. 12–13, 43, 47.



If material m_1 is to have a *preponderant ideal weight,*[39] M_1, M_1', and M_1'' will become location sites (minimal total transfer-cost points) which will be represented by S_1, S_2, S_3. Draw the isodistance-lines at the intervals of railway scales (which is at 5 km intervals up to 100 km in Japan), put on each line of the three groups the amount of 'prices at the materials sources plus total transfer costs', i.e., 'material costs plus product transfer costs', and obtain balanced points of these costs where the lines of the three groups intersect. If these points are connected in order, serrated line reflecting steplike rates can be obtained. This serrated line moves into all directions as prices at the materials sources and transfer costs (excepting freights) fluctuate. Since a differential in transfer costs excluding freights is usually very small, the main cause of the movement is the fluctuation of prices at the materials sources. The figures in ordinary type attached to each point of location represent 'prices at the materials sources plus material transfer costs', i.e., material costs, and the difference between the amount attached to the first isodistance-line of each group and the material costs at each locational point within each group is not uniform because the transfer costs excluding freights are not uniform. Next, take a piece of string of the length of the reduced scale railway between S_1 and S_2, fix each end of it at S_1 and S_2 respectively and strain the string over the serrated line as shown by a dotted line on the map to obtain the distance between S_1 and L_1'. Transfer this distance on to the railway and the point L_1 demarcating market areas of S_1 and S_2 will be obtained. The point L_2 demarcating market areas of S_2 and S_3 will be obtained in the same manner. The point for demarcating S_1 and S_3 is not necessary in the case of those material costs illustrated in this map.

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[39] I owe Hoover for this term. *Location Theory,* p. 41.

In the first case, where the consumption sphere is spread around the consumption center K to such an extent as to cover every materials saurce and where the material cost differentials among locations are small enough to enable every location to compete side by side, either each location shares the entire market or shares certain markets as well as holds another market in common, according to the position of the point of demarcation for market division. In this case, the manner in which each location controls the consumption center is similar to that of the 3rd and the 4th case to be mentioned next. According to this map, S_1 monopolizes K while controlling a division of market along the railways south of but not reaching L_1, S_2 controls a division of market along the railways north of L_1 and west of L_2, and S_3 controls a division of market along the railways east of but not reaching L_2.

In the second case, where the consumption sphere is expanded to the same extent as in the first case but the material cost differentials are too great to allow the coexistence of locations, the serrated line or rather the point of demarcation for market division shifts in proportion to the differentials and, depending on its position, either one or two locations become incapacitated to control the market and are ousted, thus two surviving locations in the competition share the entire market or share certain markets as well as hold another market in common, or only one winning location monopolizes the entire market. The manner in which the winner of the competition controls the consumption center follows the manner of the fourth case. The location ousted in this locational competition will be able to remain as a location and control the market either by sacrificing part of its profit or by replacing, subsequent to the fluctuation in prices at the materials sources, a location which has been in control of the market. There are points to be studied further about profits but they will not be gone into here.

In the third case, where a consumption sphere does not exist but there is only consumption center K and where the points of demarcation for market division all coincide with the consumption center (where L_1 comes to K, L_2 to J, hence to K, or the demarcation point between S_1 and S_3 comes to K, L_1 to J, hence to K) due to marterial cost differentials, the consumption center is controlled in common by all locations.

In the fourth case, where there is only a consumption center as in the case of the third case and where anyone or all of the demarcation points do not coincide with a consumption center due to material cost differentials, two winning locations control the consumption center in common or only one such location monopolizes it. In the map, only S_1 monopolizes K. The location ousted in this locational competition will be able to continue to remain as a location and control the consumption center if it sacrifices part of its profit or if another consumption center is developed in the vicinity, or if, as a result of the fluctuation of material prices at the sources, it replaces a location which has been in control of the consumption center.

The above discussion assumed that the railway is used for transporting materials and finished products. Where trucks are used, the study is simpler since the road networks can be considered to be usually a surface system, and, therefore, the serrated line may be regarded without change as the line of demarcation for market division for each location. Where other different means of transportation is employed along with railways, or where more than two kinds of materials are used or where materials sources and Consumption centers increase, a map can be drawn theoretically in the same manner. Production costs other than the materials price were previously omitted for the convenience of study, but where this hypothesis is removed and the competition between production costs and transfer costs is studied in general, the isodistance-lines method is also applicable. If this method is used, there is no need to reduce differentials of materials prices at the source to transfer cost differentials. Furthermore, it will supply, though to a degree, a large defect in Weberian theory of ignoring the market area problem[40] and it will also help study location dynamically, hence it will help make the theory of location dynamic to some extent.

Materials prices at the source and material extraction costs have general locational characteristics common to other cost factors comprising production costs. They have a special feature also ---that, invariably combined with the transfer cost of materials, they reveal themselves as a cost factor called material cost. This is nothing but a matter of the locational characteristics of material cost. The cost of general administration and selling at the stage of distribution similarly emerges into distribution cost in combination with the transfer cost of the finished product. Since the locational characteristics of distribution costs can be considered to correspond to those of material costs, the discussion on the subject will be omitted at this time. Material costs equal material extraction costs plus material transfer costs where industries extract materials and carry them into the factory by themselves, whereas material costs equal the materials price at the source plus material transfer costs where they purchase materials or half-materials from extracting industries or from half-material industries. As has been explained, material extraction costs and the materials price at the source have no relation to the approach of location to materials sources but the transfer cost of materials decreases in close relation to the approach of location to materials sources. Material cost thus involves two cost factors quite different in locational characteristics, and, therefore, its locating pull is '*at once non-approaching and approaching*'. In this sense material cost can be said to be unique cost factor different from transfer cost, production cost, and processing cost.

When the locational characteristics of material cost are studied from the above-mentioned angle, the locational significance of the so-called ratio of material cost in the theory of industrial location may easily be clarified. Strictly speaking, the ratio of material cost is a numerical value of the percentage of material cost to the total cost of product. In fact the ratio of material cost which is computed from manufactuning cost (factory cost) instead of the total cost is used, but the ratio to the total cost is more accurate and hence desirable than the ratio to manufacturing cost in general because in some cases the margin of error between these two ratios proves considerably wide (particularly this is remarkable in industries with heavy distribution cost) and because the ratio of transfer cost of materials needs to be studied by counterbalancing it against the ratio of transfer cost of the finished product. The ratio of material cost consists of the ratio of material extraction cost or materials price at the source and the ratio of the transfer cost of materials. The former, which is reduced by choosing a low extraction cost site or a low price-at-the-source site, has nothing to do with approach, for it does not decrease as location approaches the materials source. On the contrary, the latter decreases in close relation to the approaching of location to the materials source. The ratio of material cost, therefore, is a numerical value indicating the extent to which material cost can possibly be reduced through the non-approaching *selection* of low material extraction cost sites or low material price-at-the-source sites and through the *approaching* of location to the materials sources. How much this reduction can be realized—it depends on the geographical-point differentials or the regional differentials of material extraction costs or materials prices at the source, and upon the transfer relation between materials and finished product. The ratio of material cost, however, involves not only this problem of non-approach but also that of counterbalancing the transfer cost of materials against the transfer cost of finished product if the degree of the locational pull of materials sources is to be discussed. Therefore, the ratio itself is not a numerical value indicating the degree of locational pull of materials sources. This will be clear from the fact that, for instance, the petroleum refining industry, whose ratio of material cost is remarkably large (77.4%),[41] is located in the consumption center or on the consumption center oriented harbors and gulfs as a result of a strong pull of the consumption center (Where there is a consumption center in the vicinity of a oil production center or where a production center and a consumption center happen to be in the same place, it looks as if the industry were located right in its production center.), or from the fact that the pulp industry, whose ratio of material cost is smaller (55.7%)[42] than that of the petroleum industry, is located in the production center of its materials, or from the fact that the flax-fiber manufacturing industry whose ratio of material cost is small (40.2%),[43] is invariably located in the production center of flax while the beer industry, whose ratio of material cost is larger (50.0%)[44] than that of flax-fiber industry, is invariably located in the consumption center. In order to measure the intensity of the pull of materials sources as shown above, a precise indicator like the *material*

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[40] Hoover has pointed out this shortcoming long ago. *Location Theory*, pp. 36–37.

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[41] [42] E. B. Alderfer and H. E. Michl, *Economics of American Industry*, 1950, p. 13.

[43] [44] These are the ratios of material cost to total cost computed on the basis of research made by the author in Japan. As for an American example, the ratio of material cost for pottery and related products industry locating in the source of materials (25.5%) is far smaller than that for bread-baking industry locating in a consumption center (54.9%). These American values were taken from E. B. Alderfer and H. E. Michl, *op. cit.*, p. 13.

index and the *ideal material index*[45] must be employed.

A study of Hoover's errors will be made next and the locational nature of processing costs will be clarified. Hoover regards the budget materials which laborers consume as part of raw materials to be used in the factory on the assumption that "If real wages were everywhere uniform—that is, if only the *equalizing* differences of wages existed" and states that "we should not need to consider labor-cost differentials as an independent locational factor at all," and that "One may resolve the labor-cost factor into transfer relations with sources of materials," thus resolving labor cost in the final analysis into transfer cost.[46] In the first place, it need scarcely be said, the hypothesis that real wages are uniform can not exist in reality. Secondly, transfer cost correspondingly changes in close relation to the approaching of location to a materials source and to a consumption place, and, therefore, its locational pull, is *approaching* as well as *continuous*.[48] Labor cost, on the contrary, neither changes in response to the approaching of location to a labor place nor has anything to do with *approach*. Therefore, "each point of location where labor cost is low constitutes, economically speaking, an *attraction center* (*Attraktionszentrum*) which induces production to move from the minimal transportation-cost point. The pull of the center like this, furthermore, is not essentially an *approaching attraction* (*Annäherungsattraktion*) ... but an *alternative attraction* (*Alternativattraktion*)."[49] In other words, labor cost attracts location not in an approaching manner in which it pulls location to an intermediate point between the point of minimal transportation cost and a cheap labor place but in an alternative manner in which location either stays at a point where total transfer cost is minimal or deviates towards a cheap labor place. If labor cost is to be resolved into transfer cost as Hoover says, therefore, one will have to reach the strange conclusion that location will be pulled towards a labor place every 1 km or 5 km. Thus labor cost cannot be resolved into transfer cost nor can the labor cost differential be reduced to that of transfer cost. It is Hoover who eliminated the difference of locational nature between labor cost and transfer cost by resolving the former into the latter and it is Weber who grasped the difference correctly. It must be pointed out also that it is reasonable that Weber treated labor location (labor orientation) as a *deviation* from the minimal transportation-cost point.

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[45] If the weight of localized materials necessary to produce P weight of product is to be expressed by $m_1, m_2, m_3, \cdots\cdots, m_n$, and if the horizontal freight rates proportion for weight unit 1 of product and of each material is to be expressed by $\alpha : \beta_1 : \beta_2 : \beta_3 : \cdots\cdots : \beta_n$; $P\alpha, m_1\beta_1, m_2\beta_2, m_3\beta_3, \cdots\cdots, m_n\beta_n$, will be the ideal weights and the ideal material-index will be computed by a formula $\dfrac{\sum_{k=1}^{n} m_k\beta_k}{P\alpha}$.

Where a given transportation medium is used, the ideal material-index indicates the material-orientation intensity of location more accurately and realistically than the material-index. The ideal material-index is devised and applied to practical locational analysis by the author. See T. Aoki, *op. cit.*

[46] *Location Theory*, p. 62.

[47] In *Handbook*, Hoover recognizes the impossibility of such a hypothesis in reality, stating that "uniform *real* wages—would imply perfect mobility of labor, which does not exist." (p. 105). Concerning labor cost and transfer cost, however, he has not developed a new view which will take the place of the view be stated in *Location Theory*.

[48] I owe the term "continuous" to Hoover. *Location Theorry*, p. 77.

[49] *Reine Theorie*, S. 101.

Other cost factors comprising processing cost have locational characteristics similar to those of labor cost. Hence, the difference of locational nature between transfer cost and labor cost can generally be expanded into the difference between transfer cost and processing cost and can be summarized as follows: that the locational pull of transfer cost is *approaching* and *continuous*, whereas that of processing cost is *non-approaching* and *alternative*, and, therefore, they cannot be resolved into each other, and processing cost acts as a factor to have the primary location of a minimal total transfer-cost point deviate to the secondary location of low processing-cost point.

IV. *Locational Features of Cost Factors Comprising Processing Cost*

In this chapter, the major characteristic features of cost factors comprising processing cost will be studied.

In the first place, labor cost is a cost factor which generally exerts the most powerful deviating action upon location. Its action intensity can be measured by labor coefficient and the coefficient is by far larger in general than other deviation coefficients when various industries of the whole are taken into consideration. Secondly, it is a cost factor that deviates the greatest number of industries. Thirdly, the flexibility of location by labor power is usually far smaller than that by electric-power since the low labor cost area is usually much smaller than the low electric-power cost area.

Next to labor cost, electric-power cost generally exerts the most powerful deviating action upon location and its action intensity is measured by the electric-power coefficient.[50] Secondly, it is a cost factor that deviates a fairly large number of industries belonging to electro-chemical and electro-metallurgical industries.

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[50] $$\text{Electric-power coefficient}=\frac{\text{Electric-power cost ratio}}{\text{Locational weight}}$$

In this case, however, $$\text{Electric-power cost ratio}=\frac{\text{Electric-power cost}}{\text{Total cost of product}}$$

or $$\frac{\text{Electric-power cost}}{\text{Manufacturing cost of product}}$$

It is accurate and therefore desirable to base the computation on total cost of product. Weber's so-called locational ton (*Standortstonne*) is used for locational weight for convenience' sake in comparing coefficients. The electric-power coefficient is a numerical value indicating the intensity of locational orientation towards electric-power and has a value of $0<\text{Electric-power coefficient}<1$. The intensity of orientation towards electric-power becomes greater as the value approaches 1. Where no electric-power is used, Electric-power coefficient$=0$, but this rarely happens nowadays. The electric-power coefficient is devised by the author. See T. Aoki, "Critical reformation of Weber's Orientation-theory of Industrial Location and its Adaptation to Economic Goegraphy" (in Japanese), *The Hitotsubashi Review*, Vol. 33, No. 6, 1955, p. 69.

Thirdly, location is first oriented more often than not towards the low electric-power cost zone and then finally selected in transfer relations since the vastness of the low electric-power cost area helps increase the flexibility of location by electric-power as well as the possibility of finding new sources of materials.

As for the interest, differentiation must be made between the interest cost advantage that arises from interest rate differentials and one that is created by capital saving. "Interest rates vary remarkably from country to country of various nations of the world due to the difference in security and capital abundance but they generally do not vary within a country from locality to locality,"[51] and "Interest rates exhibit a tendency to vary with distance from major financial centers but are rarely a significant factor of location within any one country."[52] Although Lösch illustrated that interest rates go up irregularly with distance from financial centers[53] but generally the differentials in the ratio of interest to total cost due to interest rate differentials are very small. Therefore, interest cost advantage that arises from interest rate differentials is not significant in general as a locational factor.

Interest cost advantage that arises from capital saving poses a locational problem when capital expenditure differentials become large due to regional difference (including geographical-point difference) in natural conditions and social conditions or when land is purchased. With regards to the purchasing of land, Weber computed the interest by taking, as an example, steel manufactory by the Thomas converter (*Thomaswerk*), the price of whose products is cheap considering the size of the factory site, and maintains that interest occupies only 0.02% of cost per ton of steel, and, therefore, land price is not significant as a locational factor.[54] In other words, while land price presents itself as an interest cost factor, interest cost advantage resulting from reduced capital due to land price differentials is not generally significant as a locational factor. Land rents are not significant either as a locational factor since their ratio to total cost is usually small. This is natural in the manufacturing industries where land is utilized most intensively.

As industries agglomerate in a certain area, however, the ratio of rent to total cost in the existing industries, and the ratio of rent or interest due to land price to total cost in the industries to be newly located increases remarkably, and certain industries, or factories doing a part of divided processing, that cannot afford rents, will be dispersed from the area of agglomeration. Thus rent as well as interest due to land price becomes "a locational factor as far as agglomerative tendencies exist"[55] and constitutes one of the cost factors that strongly influence the dispersion of industries.

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[51] *Reine Theorie*, S. 30.

[52] *Handbook*, p. 70.

[53] A. Lösch, *op. cit.*, S. 300–304.

[54] *Reine Theorie*, S. 31. Weber's way of computation may be explained here. In the case of steel manufacturing by the Thomas converter (Basic converter), approximately 100 hectares of land are necessary to produce 300,000 to 400,000 tons of product annually. In this case the capital expenditures is 50,000 Marks if land price is 5 Marks per Ar or 250,000 Marks if land price is 25 Marks per Ar. If the annual interest rate is set at 2.5%, the differential of interests due to land price differentials will be 5,000 Marks. If the actual amount of product is to be 250,000 tons per year, the interest per ton will be 0.02 Mark, which will be 0.02% of 100 Marks, the cost per ton of steel.

The reduction of capital expenditures due to regional differentials in social and natural conditions becomes interest cost advantage on one hand and depreciation cost advantage on the other. The reduction of capital expenditures due to regional defferentials in social conditions will be, for instance, the reduction of capital expenditures for auxiliary processing and private tracks in an area where railway network and auxiliary industries have been developed. On the matter of the regional differentials in natural conditions, the more strict the natural conditions demanded by the industry or the greater the funds for technological facilities for overcoming natural conditions, and the greater the regional differentials in natural conditions, the greater become the regional differentials in capital expenditures and both the interest differential and the depreciation cost differential become important locational factors.

Thus the proportion of the locational importance of interest and depreciation cost to the industry depends on these conditions mentioned above. In such industries as wrist-watch, sensitive materials (films, printing-paper, dry-plate, and sensitizer emulsion) manufacturing, interest and depreciation cost differentials due to the regional differentials in natural conditions become a determining locational factor, whereas in the spinning industry which must install an apparatus for adjusting temperatures and humidity wherever it locates itself and whose regional differentials in capital expenditures are not so great, interest and depreciation differentials do not constitute a very important locational factor. As for repair costs, they restrict location directly through the differential they create in response to the regional differentials in social and natural conditions and not through the medium of capital expenditures. It must be noted in this connection that, although repair cost, depreciation cost and interest are affected in many cases by non-regional causes, in such cases they do not operate as locational factors. Outside processing costs also constitute an important cost factor, particularly in the case of industries whose degree of dependence on related industries is great.

Water cost is a cost factor whose significance grows greater as industrial agglomeration is intensified. To illustrate, an excessive pumping of subterranean water caused the sinking of the ground as much as 7 to 8 centimeters a year in the manufacturing regions of Osaka and Tokyo-Kawasaki in Japan and the industrial water systems are being constructed. Thus water costs are gradually on the increase. In the United States and West Germany as well, water which has hitherto been rather neglected is becoming an important locational factor.[56]

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[55] *Reine Theorie,* S. 32.

[56] C. Langdon White, "Water—A Neglected Factor in the Geographical Literature of Iron and Steel", *The Goegraphical Review,* Vol. 47, No. 4, 1957, pp. 463–489. Hans Seeberger, *Industriestandort und Wasser,* 1957, S. 9.

Tax differentials become a determining locational factor whenever they are relatively permanent in character[57] and whenever total costs, other than taxes, are approximately equal among various locations,[58] and only in the final stage of locational analysis of various sites.[59] In many cases taxes generally do not influence locational choices[60] and it seems that taxes are a relatively unimportant, secondary factor of location.[61]

In conclusion, it may be added that *the principle of approach and non-approach*, which the above study clarified, can be adapted as one of the guiding principles in making a study of the industrialization of the so-called underdeveloped regions from the standpoint of location theory and of economic geography.

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[57] Joe Summers Floyd, *Effects of Taxation on Industrial Location*, 1952, pp. 25, 110.
[58] *Ibid.*, pp. 22, 24.
[59] Glenn E. McLaughlin and Stefan Robock, *Why Industry Moves South*, 1949, p. 107.
[60] J. S. Floyd, *op. cit.*, pp. 23–24.
[61] M. L. Greenhut, *op. cit.*, p. 139.

BIBLIOGRAPHY ON ECONOMICS PUBLISHED IN JAPAN IN WESTERN LANGUAGES, 1956–1958

Compiled here is a bibliography of books and articles in *western languages* in various fields of economics that were published *in Japan* during 1956–1958. It constitutes a sequel to the similar list for 1945–1955 which was made public in *Japan Science Review, Economic Sciences*, No. 3, 1956. As in the case of the earlier list, this bibliography is the work of the Library staff of the Institute of Economic Resarch, Hitotsubashi University under the supervision of Mr. Fukumaru Aso. The classification adopted is as follows.

I. Economic Theory, History of Economic Thought
II. International Economy
III. Japanese Economy
IV. Economic History
V. Commerce, International Trade, Transportation
VI. Management, Accounting
VII. Finance, Money, Insurance
VIII. Public Finance
IX. Industry
X. Agriculture
XI. Sociology, Population
XII. Labor
XIII. Statistics

I. *Economic Theory, History of Economic Thought*

Abe, Osamu (阿部　統): Regression analysis and errors in variables in economic time series. *Kyoto University Economic Review* Vol. 26, no. 2, p. 39–46 (Oct. 1956)

Bibliography and abstracts of economic sciences (works published in 1957), prepared by the Japan Union of Associations of Economic Sciences. *Japan Science Review, Economic Sciences* No. 5, p. 27–151 (1958)

Bibliography on economic sciences published in Japan in western languages, 1945–1955, prepared by Japan Union of Associations of Economic Sciences. *Japan Science Review, Economic Sciences* No. 3, p. 17–32 (1956)

Bibliography on economic sciences published in Japanese journals with the items translated into foreign languages, 1953–1955; 1956, prepared by the Japan Associations of Union of Economic Sciences. *Japan Science Review, Economic Sciences* No. 3, p. 33–193; No. 4, p. 63–124 (1956—57)

Bronfenbrenner, M.: The American distribution and inflation problems. *Annals of the Hitotsubashi Academy* Vol. 9, no. 2, p. 179–193. (Apr. 1959)

Bronfenbrenner, M.: Japanese economic thought – A foreigner's eye-view-. *Mita Gakkai Zasshi* （三田学会雑誌） Vol. 49, no. 3, p. 1–10 (Mar. 1956)

Цаголов, Н. А.: Великий вклад в зкономическую науку. *Keizai Kenkyu* （経済研究，一橋大） Vol. 9, no. 4, p. 328–332 (Oct. 1958)

Deguchi, Yuzo (出口勇蔵): The economic theory concieved by Max Weber. *Kyoto University Economic Review* Vol. 27, no. 1, p. 1–13 (Apr. 1957)

Deguchi, Yuzo (出口勇蔵): Essays on a methodological study of social sciences. Tokyo, Science Council of Japan, 1958. 77p. (Science Council of Japan, Economic Series, No. 22)

Dobb, Maurice: Marx and the so-called 'Law of increasing misery'. *Keizai Kenkyu* （経済研究，一橋大） Vol. 8, no. 1, p. 21–25 (Jan. 1957)

Eckstein, Alexander: Conditions and prospects for economic growth in Mainland China: some comments. *Keizai Kenkyu* （経済研究，一橋大） Vol. 8, no. 3, p. 234–240 (July 1957)

Fujii, Shigeru (藤井　茂): The development of Japanese industries from standpoint of rate of growth. *Kobe University Economic Review* No. 1, p. 29–44 (1955)

Fukuhara, Gyozo (福原行三): John Stuart Mill and socialism. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1, p. 53–76 (Mar. 1957)

Fukuhara, Gyozo (福原行三): John Stuart Mill on production and distribution policy—In relation to the classical economists. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 76–88 (Feb. 1958)

Hecht, J.: Le tableau: sa publication, son interpretation, son influence. *Keizai Kenkyu* （経済研究，一橋大） Vol. 9, no. 4. p, 336–346 (Oct. 1958)

Honjo, Eijiro (本庄栄治郎): The development of the economics in Japan. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1, p. 1–14 (Mar. 1957)

Ichihashi, Hideyo (市橋英世): Mathematical profit planning of the monopolistic firm. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1, p. 86–95 (Mar. 1957)

Iyemoto, Hidetaro (家本秀太郎): On the generalization of Engel's law. *Kobe University Economic Review* No. 1. p. 45—54 (1955)

Iizuka, Ichiro (飯塚一郎): Some problems in the interpretation of English mercantilism. *Hokei Ronbunshu* （法経論文集） No. 3, p. 87–98 (Dec. 1955)

Imagawa, Tadashi (今川　正): Technical complementarity in linear programming. *Kyoto University Economic Review* Vol. 27, no. 1, p. 14–31 (Apr. 1957)

Inaba, Shiro (稲葉四郎): Some considerations on the conditions of equilibrium growth. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1. p. 29–46 (Mar. 1957)

Inaba, Shiro (稲葉四郎): A note on the so-called secular inflation. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 21–33 (Feb. 1958)

Itagaki, Yoichi (板垣与一) : The problem of economic backwardness and the theory of economic development. *Annals of the Hitotsubashi Academy* Vol. 8, no. 1, p. 20–28 (Oct. 1957)

Ito, Wataru (伊藤 弥) : A historical study of mercantilism. *Boeki Kenkyu* (貿易研究) No. 2, p. 144–194 (Feb. 1959)

Japan Union of Associations.: Discussions by the representatives of the member-societies. *Japan Science Review, Economic Sciences* No. 4, p. 31–62 (1957)

John Stuart Mill, On Liberty (discussion) : MacIver, R. M.; Russel, Bertrand; Bryson, Lyman. *Kansai-Univ. Keizai Ronshu* (関大経済論集) Vol. 6, no. 7, p. 1–13 (Nov. 1956)

Kaldor, Nicholas : Capitalist evolution in the light of Keynesian economics. *Riron Keizaigaku* (理論経済学) Vol. 9, 1/2, p. 52–60 (Jan. 1959)

Katano, Hikoji (片野彦二) : Reconstruction of the theory of purchasing power parity. *Kobe Economic and Business Review* No. 4, p. 125–148 (Oct. 1957)

Kawano, Shigeto (川野重任) : Appraisal of Nurkse's theory on the economic developement in underdeveloped countries. *Asian Affairs* Vol. 1, no. 1, p. 60–69 (Mar. 1956)

Kimura, Hitoshi (木村 等) : A remark on price analysis in Leontief's open input-output model. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 3, p. 201–213 (1958)

Kitano, Yukio (北野熊喜男) : Fundament der Wirtschaftssoziologie. *Kobe University Economic Review* No. 1, p. 33–52 (1956)

Kiuchi, Kaichi (木内佳市) : Depreciation in Keynes' General theory—an accountant's note. *Osaka Economic Papers* Vol. 5, no. 1, p. 1–8 (Aug. 1956)

Kobayashi, Noboru (小林 昇) : Our studies on the history of economic doctrines, 1952–1955. *Japan Science Review, Economic Sciences* No. 5, p. 13–26 (1958)

Komuro, Naoki (小室直樹) : The equilibrium and stability of the market with demonstration effect. *Osaka Economic Papers* Vol. 7, no. 1, p. 31–44 (Sept. 1958)

Kubo, Yoshikazu (久保芳和) : Benjamin Franklin and homo economicus. *Kwansei Gakuin University, Annual studies* Vol. 5, p. 45–57 (Jan. 1957)

Kubota, Akiteru (久保田明光) : Essai sur les perturbations du système d'équilibre dans le Tableau Economique de François Quesnay. *Waseda Economic Papers* No. 1, p. 1–23 (1955)

Kubota, Akiteru (久保田明光) : Three economists of Waseda University, 1886—1920. *Waseda Economic Papers* No. 2, p. 1–14 (1958)

Kumagai, Hisao (熊谷尚夫) : Ricardo, Marx, Keynes and the relationship between wage rate and prices. *Osaka Economic Papers* Vol. 6, no. 1, p. 1–15 (Sept. 1957)

Kumagai, Hisao (熊谷尚夫) : External economies and the problem of investment criteria. *Osaka Economic Papers* Vol. 7, no, 2, p. 13–20 (Feb. 1959)

Kurihara, K. K. : A note on inflation and economic development. *Riron Keizaigaku* (理論経済学) Vol. 8, no. 1/2, p. 74–78 (June 1957)

Kurishige, Ikuo (栗重育雄) : Economic functions of commodity exchanges. *Rokkodai Ronshu* (六甲台論集) Vol. 4, no. 1, p. 1–4 (Apr. 1957)

Kusui, Ryuzo (楠井隆三) : A new conception of economic value. *Kwansei Gakuin University, Annual studies* Vol. 4, p. 127–150 (Mar. 1956)

Matsuyama, Shigejiro (松山茂二郎) : The disguised unemployment and economic growth in the underdeveloped countries. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 34–43 (Feb. 1958)

Meek, R. L. : Is economics biased? A heretical view of a leading thesis in Schumpeter's History. (久保田明光教授還暦記念論文集 東京 創元社 1957. p. 19–44)

Mizutani, Kazuo (水谷一雄) : On Tanaka's multiplier in an open system. *Kobe University Economic Review* No. 1, p. 23–28 (1955)

Mizutani, Kazuo (水谷一雄): A system of functional equations for the behavior of the price of stock in a stock exchange. Tokyo, Science Council of Japan, 1956. 27p. (Science Council of Japan, Economic Series, No. 9)

Mukai, Toshimasa (向井利昌) : Some notes on sociological consideration of economy —With special emphasis on Mr. T. Parsons's theory. *Kobe University Economic Review* No. 3, p. 79–76 (1957)

Nagashima, Kiyoshi (永島 清) : Some notes on the socialist concepts of national income. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1, p. 77–85 (Mar. 1957)

Nagashima, Kiyoshi (永島 清) : A survey of business cycles in postwar Japan —From the view point of national income statistics. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 63–75 (Feb. 1958)

Naniwada, Haruo (難波田春夫) : Staat und Wirtschaft: Grundlegung der Nationalökonomie als der Logik der bürgerlichen Gesellschaft. Tokyo, Science Council of Japan, 1957. 76 p. (Science Council of Japan, Economic Series, No. 16)

Nishimura, Takao (西村孝夫) : Economics and historical consciousness. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 54–62 (Feb. 1958)

Nonomura, Kazuo (野々村一雄) : The price system in the Soviet Union. *Annals of the Hitotsubashi Academy* Vol. 6, no. 2, p. 29–46 (Apr. 1956)

Nose, Nobuko (能勢信子) : On the model-building for social accounting design. *Kobe Economic and business Review* No. 3, p. 135–147 (June 1956)

Nose, Nobuko (能勢信子) : More on the structure of national income distribution in Japan. *Kobe Economic and Business Review* No. 4, p. 91–124 (Oct. 1957)

Ohkawa, Kazushi (大川一司) : Economic growth and agriculture—with special reference to the productivity-employment problem. *Annals of the Hitotsubashi Academy* Vol. 7, no. 1, p. 46—60 (Oct. 1956)

Ohkawa, Kazushi (大川一司) : The growth rate of the Japanese economy since 1878. Tokyo, Kinokuniya, 1957. xvii, 250p. (Economic Research Series, Vol. 1)

Ohmae, Sakuro (大前朔郎) : William Cobbett and the poor laws.—Chiefly on his papers in the "Political register" between 1807 and 1820—. *Kwansei Gakuin University, Annual studies* Vol. 5, p. 59–67 (Jan. 1957)

Okishio, Nobuo (置塩信雄) : Monopoly and the rate of profit. *Kobe University Economic Review* No. 1, p. 71–88 (1955)

Oshima, Harry T. : Notes on an alternative method of estimating the national income and expenditure of Japan, 1881. *Keizai Kenkyu* (経済研究, 一橋大) Vol. 8, no. 3, p. 242–251 (July 1957)

Oshima, Harry T. : Rejoinder to Henry Rosovsky. *Keizai Kenkyu* (経済研究, 一橋大) Vol. 9, no. 1, p. 72–73 (Jan. 1958)

Oshima, Harry T. : On inflation and economic development. *Riron Keizaigaku* (理論経済学) Vol. 8, no. 3/4, p. 29–33 (Mar. 1958)

Perroux, François. : Notes sur la notion de «pôle do croissance». (久保田明光教授還暦記念論文集 東京 創元社 1957. p. 1–18)

Pfouts, R. W. : The welfare programming of public investment. *Waseda Economic Papers* No. 1, p. 55–62 (1955)

Rosovsky, Henry : Some thoughts on Mr. Oshima's benchmark for 1881. *Keizai Kenkyu* (経済研究, 一橋大) Vol. 8, no. 3, p. 252–253 (July 1957)

Rosovsky, Henry : The enterpreneurial approach to economic history. *Keizai Kagaku* (経済科学) Vol. 6, no. 1, p. 1–9 (June 1958)

Ryu, Shintaro（笠 信太郎）: An economy without a frontier. *Japan Quarterly* Vol. 4, no. 1, p. 21–30 (Jan.-Mar. 1957)

Sakaeda, Yoshitaka（酒枝義旗）: Von "Nation, Nationalität" und "Graden, Stufen" im "Nationalen System der politischen Ökonomie" von Friedrich List, oder ob List ein Theoretiker war? *Waseda Economic Papers* No. 1, p. 23–37 (1955)

Sakai, Shozaburo（酒井正三郎）: The theory of structural change of national economy. Tokyo, Science Council of Japan, 1956. 120p. (Science Council of Japan, Economic Series, No. 12)

Sakata, Taro（坂田太郎）: On various forms of Quesnay's Tableau Economique—In commemoration of the bicentenary of François Quesnay's Tableau Economique. *Annals of the Hitotsubashi Academy* Vol. 9, no. 1, p. 14–56 (Oct. 1958)

Sakurai, Kinichiro（桜井欣一郎）: A brief review of modern economic thought in Japan. *Aoyama Keizai Ronshu*（青山経済論集）Vol. 9, no. 3, p. 57–72 (Dec 1957)

Sato, Kazuo（佐藤和男）: A simple model of the business cycles in the expansion phase. *Keizaigaku Kenkyu*（経済学研究，北大）No. 10, p. 1–9 (Aug. 1956)

Shibata, Kei（柴田 敬）: Critical study of Mr. Hicks's cycle theory. Tokyo, Kobundo, 1952. ii, 94 p.

Shibata, Kei（柴田 敬）: Fatal errors newly uncovered in Keynesian theory. *Kyoto University Economic Review* Vol. 26, no. 1, p. 13–42 (Apr. 1956)

Shibata, Kei（柴田 敬）: Dynamic and dialectic theories of world capitalism. Kyoto, Minerva Shobo, 1959. 268, 6p.

Shimano, Takuji（島野卓爾）: Die Veränderungen in der Leistungsfunktionen des Mittelstandes in Deutschland unter besonderer Berücksichtigung der Kapitalverhältnisse. (1 & 2) *Jochi Keizai Ronshu*（上智経済論集）Vol. 3, no, 2. p. 40–49; Vol. 4, no. 1, p. 52–60 (Dec. 1956; July 1957)

Shinjo, Hiroshi（新庄 博）: Some notes on money, income and effective demand. *Kobe University Economic Review* No. 2, p. 1–10 (1956)

Shinohara, Miyohei（篠原三代平）: Inventory cycles in post-war Japan. *Annals of the Hitotsubashi Academy* Vol. 9, no. 2, p. 218–232 (Apr. 1959)

Sobajima, Shozo（傍島省三）: Economic competition, real and imagined. *Osaka Economic Papers* Vol. 5, no. 2, p. 17–26 (Jan. 1957)

Sobajima, Shozo（傍島省三）: A comment of theory of economic development. *Osaka Economic Papers* Vol. 7, no. 2, p. 1—12 (Feb. 1959)

Suzuki, Hideo（鈴木秀勇）: Ethnographical in John Locke's theories. (1) *Annals of the Hitotsubashi Academy* Vol. 6, no. 2, p. 47–65 (Apr. 1956)

Takahashi, Chotaro（高橋長太郎）: Capital accumulation in early Meiji era. *Asian Affairs* Vol. 1, no. 2, p. 130–148 (June 1956)

Takashima, Zenya（髙島善哉）: A new methodological approach to the history of economic thought—An attempt at unification of the historical and theoretical approaches. *Annals of the Hitotsubashi Academy* Vol. 9, no. 1, p. 1–13 (Oct. 1958)

Takata, Yasuma（高田保馬）: An introduction to sociological economics. Tokyo, Science Council of Japan, 1956. 83p. (Science Council of Japan, Economic Series, No. 13)

Takata, Yasuma（高田保馬）: Introductory notes on sociological economics. *Osaka Economic Papers* Vol. 5, no. 2, p. 1–16 (Jan. 1957)

Tatemoto, Masahiro（建元正弘）: Productivity growth and trade balance. *Osaka Economic Papers* Vol. 6, no. 1, p. 16–24 (Sept. 1957)

Tsuru, Shigeto（都留重人）: Essays on marxism economics. Tokyo, Science Council of Japan, 1956. 79p. (Science Council of Japan, Economic Series, No. 8)

Tsuru, Shigeto（都留重人）: A note on capital/output ratio. *Keizai Kenkyu*（経済研究，一橋大）Vol. 7, no. 2, p. 114–120 (Apr. 1956)

Tsuru, Shigeto（都留重人）: Empirical testing of the macro-economic planning in Japan. *Keizai Kenkyu*（経済研究，一橋大）Vol. 9, no. 1, p. 27–35 (Jan. 1958)

Tsuru, Takashi（都留　隆）: Technology and industrialization. *Hitotsubashi Kenkyu*（一橋研究）No. 2, p. 131–138 (Mar. 1956)

Usui, Mikoto（碓氷　尊）: Développement économique et répartition du travail. *Keizai Kagaku*（経済科学）Vol. 5, no. 1, p. 35–52 (Mar. 1957)

Utsumi, Yoichi（内海洋一）: Rigidity of wage rate and the interfirm wage differentials. *Osaka Economic Papers* Vol. 6, no. 2, p. 39–58 (Feb. 1958)

Wada, Sadao（和田貞夫）: Foundations of recent business cycle theories. *Bulletin of University of Osaka Preferctuve, Ser. D.* No. 1, p. 96–108 (Mar. 1957)

Wada, Sadao（和田貞夫）: A note on the warranted rate of growth. *Bulletin of University of Osaka Prefecture. Ser. D.* No. 2, p. 89–96 (Feb. 1958)

Watanabe, Taro（渡辺太郎）: Leontief's paradox and the traditional theory. *Osaka Economic Papers* Vol. 6, no. 2, p. 11–19 (Feb. 1958)

Yokoyama, Tamotsu（横山　保）: Continuity conditions of preference ordering. *Osaka Economic Papers* Vol. 4, no. 3, p. 39–45 (Feb. 1956)

Yokoyama, Tamotsu（横山　保）: Some notes on bounded variables problem. *Osaka Economic Papers* Vol. 6, no. 2, p. 20–30 (Feb. 1958)

II. *International Economy*

Aki, Koichi（安芸皎一）: Some considerations on economic development of South-East Asian countries. *Shigen*（資源）No. 60, p. 6–7 (Dec. 1957)

Fujii, Shigeru（藤井　茂）: The scale and speed of economic development in Asiatic countries. *Asian Affairs* Vol. 1, no. 1, p. 12–23 (Mar. 1956)

Fujiyama, Aiichiro（藤山愛一郎）: Southeast Asia and Japanese economic diplomacy. *Contemporary Japan* Vol. 25, no. 2, p. 180–184 (Apr. 1958)

Hara, Kakuten（原　覚天）: Economic development and possibility of trade expansion in Southeast Asia. *Asian Affairs* Vol. 1, no. 1, p. 24–35 (Mar. 1956)

Honiden, Yoshio（本位田祥男）: Importance of smaller industries in Asia and possible Japanese contribution. *Asian Affairs* Vol. 2, no. 3, p. 283–301 (Sept. 1957)

Ihara, Takashi（伊原　隆）: Economic development in Southeast Asia and problems on raising of fund. *Asian Affairs* Vol. 2, no. 4, p. 349–369 (Dec. 1957)

Ishikawa, Shigeru（石川　滋）: An analysis of economic growth in China. *Asian Affairs* Vol. 2, no. 1, p. 21–46 (Mar. 1957)

Itagaki, Yoichi（板垣与一）: Modernization of Asia. *Asian Affairs* Vol. 1, no. 2, p. 164–175 (June 1956)

Katano, Hikoji（片野彦二）: Rate of profit and international specialization of production. *Kobe Economic and Business Review* No. 5, p. 103–119 (Aug. 1958)

Katayama, Kenji（片山謙二）: Asian economy and European common market. *Asian Affairs* Vol. 3, no. 1, p. 80–99 (Mar. 1958)

Kawano, Shigeto（川野重任）: Reflection on economic development programs in Southeast Asian countries. *Asian Affairs* Vol. 2, no. 3, p. 221–232 (Sept. 1957)

Matsui, Kiyoshi（松井　清）: Problems of the economic development in underdeveloped countries. *Kyoto University Economic Review* Vol. 26, no. 2, p. 1–9 (Oct. 1956)

Matsuo, Taiichiro（松尾泰一郎）: Structural analysis of Japan's trade with Southeast Asia. *Asian Affairs* Vol. 3, no. 1, p. 25–44 (Mar. 1958)

Miyashita, Tadao（宮下忠雄）: Economic construction of new China. *Asian Affairs* Vol. 2, no. 1, p. 3–20 (Mar. 1957)

Mizuno, Fujio（水野不二夫）: Trends in East-West trade and the position of Asia. *Asian Affairs* Vol. 3, no. 1, p. 56–70 (Mar. 1958)

Morimoto, Norio（森本憲夫）: Some literatures for the study of space economy and world economy. *Ehime Daigaku Kiyo, Sect. 4, Social Sciences*（愛媛大学紀要，第４部 社会科学）Vol. 2, no. 4, p. 29–46 (Dec. 1957)

Nakayama, Ichiro（中山伊知郎）: My participation in the first congress of the International Economic Association. *Japan Science Review, Economic Sciences* No. 4, p. 5–20 (1957)

Noda, Sanae（野田早苗）: Des similarités économiques russo-américaines (premiere partie). *Fukuoka Daigaku Keizaigaku Ronso*（福岡大学経済学論叢）Vol. 3, no. 3, p. 327–342 (Oct. 1958)

Sato, Shinichiro（佐藤慎一郎）: Old China and new China. *Asian Affairs* Vol. 2, no. 1, p. 73–84 (Mar. 1957)

Sobajima, Shozo（傍島省三）: Japan's reparation as a third type of capital transfer. *Osaka Economic Papers* Vol. 4, no. 3, p. 9–16 (Feb. 1956)

Sobajima, Shozo（傍島省三）: Foreign investment helpful to economic growth of underdeveloped nations. *Osaka Economic Papers* Vol. 6, no. 2, p. 1–10 (Feb. 1958)

Yamamoto, Noboru（山本　登）: Reparation and economic cooperation. *Asian Affairs* Vol. 1, no. 3, p. 246–259 (Sep. 1956)

Yamamoto, Noboru（山本　登）: Problems of regional economic cooperation and "common market" in Asia. *Asian Affairs* Vol. 2, no. 3, p. 233–245 (Spet. 1957)

Yamazaki, Ryuzo（山崎隆造）: Japan's economic cooperation with Asia countries and its problems. *Asian Affairs* Vol. 2, no. 3, p. 246–262 (Spet. 1957)

III. *Japanese Economy*

Aoyama, Hideo（青山秀夫）& Nishikawa, Toru（西川　徹）: Business fluctuations in Japanese economy during the inter-war period. *Kyoto University Economic Review* Vol. 28, no. 1, p. 14–39 (Apr. 1958)

Asia Kyokai（アジア協会）: Outline of the white paper on the Japanese national living. *Asian Affairs* Vol. 1, no. 4, p. 400–408 (Dec. 1956)

Goto, Yonosuke（後藤誉之助）: White papers on Japanese economy. *Asian Affairs* Vol. 2, no. 3, p. 326–337 (Sept. 1957)

Hayami, Nagao（速水永夫）: Economic aspects of atomic generation in Japan. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 9–20 (Feb. 1958)

Honiden, Yoshio (本位田祥男): Economic cooperation. It's nature and problems. *Asian Affairs* Vol. 1, no. 3, p. 219–232 (Sept. 1956)

Honjo, Eijiro (本庄栄治郎): Post-war national life of Japan. *Kyoto University Economic Review* Vol. 27, no. 2, p. 1–18 (Oct. 1957)

Institute of World Economy : The Japan annual. Tokyo, the Institute, 1958. 392 p.

Ishizaka, Taizo (石坂泰三): Japan's role world economy. *Contemporary Japan* Vol. 24, no. 4/6, p. 266–272 (1956)

Japan. *Economic Planning Agency* : Economic survey of Japan, 1955–1956; 1956–1957; 1957—1958. Tokyo, the Agency, 1956—1958. iv 209, 78; xiv, 352; 365 p. 3 vols.

Japan. *Economic Planning Agency* : New long-range economic plan of Japan, FY 1958—FY 1962. Tokyo, the Agency, 1957. 196 p.

Japan. *Ministry of International Trade & Industry, Council for Industry Planning.* Capital structure of the Japanese economy. Tokyo. 1958. 34p.

Japan. *Ministry of International Trade & Industry, Council for Industry Planning.* Interindustry analysis of the Japanese economy. Tokyo. 1958. 47p. 7 tables.

The Japanese economy in 1955. *Monthly Circular, Survey of Economic Conditions in Japan* No. 314, p. 2–48 (Jan. 1956)

Living Standards improvement. *The Oriental Economist* Vol. 25, no. 565, p. 569–572 (Nov. 1957)

Miyata, Kiyozo (宮田喜代蔵): Reparations and Japan's economy. *Asian Affairs* Vol. 1, no. 3, p. 233–245 (Sept. 1956)

Morita, Yuzo (森田優三): The national income and the standard of living in Japan. *Japan Quarterly* Vol. 3, no. 1, p. 107–117 (Jan.-Mar. 1956)

Morozumi, Yoshihiko (両角良彦): Trade and industry reviewed (Ten years of reconstruction and development, Part 2) *Contemporary Japan* Vol. 24, no. 1/3, p. 55–67. (1956)

Nakanishi, Naoyuki (中西直行) : National income in the fiscal year 1956/57. *Monthly Circular, Survey of Economic Conditions in Japan* No. 342, p. 10–18 (May 1958)

Nakayama, Ichiro (中山伊知郎): Characteristics of the Japanese economy and capital accumulation. *Asian Affairs* Vol. 1, no. 2, p. 109–129 (June 1956)

Naniwada, Haruo (難波田春夫): Stand und Zukunft der japanischen Volkswirtschaft. *Kanto Tanki Daigaku Kiyo* (関東短期大学季要) Vol. 4, p. 90–114 (Dec. 1958)

National income in 1955. *The Oriental Economist* Vol. 24, no. 549, p. 325–327 (July 1956)

National income, fiscal 1955-56. *The Oriental Economist* Vol. 24, no. 554, p. 587–589 (Dec. 1956)

Ohkawa, Kazushi (大川一司): The differential employment structure of Japan. *Annals of the Hitotsubashi Academy* Vol. 9, no, 2, p. 205–217 (Apr. 1959)

Okita, Saburo (大来佐武郎): Political and economic conditions for development planning. *Asian Affairs* Vol. 1, no. 1, p. 1–11 (Mar. 1956)

The Oriental Economist: Japan economic yearbook, 1956; 1957. Tokyo, the Oriental Economist, 1956; 1957. 200; 205p.

Ozawa, Takeo (小沢武夫): Japanese foreign debts and reparation problems. *Asian Affairs* Vol. 1, no. 3, p. 274–289 (Sept. 1956)

Problems surrounding the normalization of Japanese economy. *Monthly Circular, Survey of Economic Conditions in Japan* No. 318, p. 11–43 (May 1956)

Present situation and future prospects of the Japanese economy. *Monthly Circular, Survey of Economic Conditions in Japan* No. 341, p. 4–107 (Apr. 1958)

Review of Japanese economy in 1956. *Monthly Circular, Survey of Economic Conditions in Japan* No. 326, p. 2–66 (Jan. 1957)

Tsuru, Shigeto (都留重人): Essays on Japanese economy. Tokyo, Kinokuniya, 1958. iv, 241 p. (Economic Research Series, Vol. 2)

Uchiyama, Isamu (内山 勇): Construction works in past decade. (Ten years of reconstruction and development). *Contemporary Japan* Vol. 24, no. 4/6, p. 244–254 (1956)

Yamada, Yuzo (山田雄三): On the five years economic plan in Japan. Some methodological considerations. *Annals of the Hitotsubashi Academy* Vol. 7, no. 1, p. 33–45 (Oct. 1956)

Yamada, Yuzo (山田雄三): The conditions of stability and progress in the Japanese economy (main report). *Japan Science Review, Economic Sciences.* No. 4, p. 21–30 (1957)

Yamanaka, Tokutaro (山中篤太郎): Prerequisites for Japanese economy and small-medium industry. *Annals of the Hitotsubashi Academy* Vol. 7, no. 2, p. 91–114 (Apr. 1957)

IV. *Economic History*

Baba, Keinosuke (馬場啓之助): Japanese gains from trade, 1878–1932. *Annals of the Hitotsubashi Academy* Vol. 8, no. 2, p. 127–142 (Apr. 1958)

Emi, Koichi (江見康一): Capital formation in residential real estate in Japan, 1887—1940. *Annals of the Hitotsubashi Academy* Vol. 9, no. 2, p. 233–243 (Apr. 1959)

Fujii, Sadayoshi (藤井定義): On "makihata" in Oki island. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 124–132 (Feb. 1958)

Fujita, Masahiro (藤田正寛): Fundamental features of the accumulation of capital in the late Meiji era. *Kobe Economic and Business Review* No. 5, p. 23–41 (Aug. 1958)

Horie, Yasuzo (堀江保蔵): The problem of the modernization of Japan. *Kyoto University Economic Review* Vol. 26, no. 1, (Apr. 1956)

Hosoya, Chihiro (細谷千博): Origin of the Siberian intervention, 1917–1918. *Annals of the Hitotsubashi Academy* Vol. 9, no. 1, p. 91–108 (Oct. 1958)

Hozumi, Fumio (穂積文雄): Some notes on the Luddites. *Kyoto University Economic Review* Vol. 26, no. 2, p. 10–38 (Oct. 1956)

Ito, Koichi (伊藤幸一): On the commercial activities of the Mongols in the early years of Yuan dynasty. *Kyoto University Economic Review* Vol. 27, no. 1, p. 53–63 (Apr. 1957)

Komatsu, Yoshitaka (小松芳喬): The Birth, development and recent trends of economic history in Japan: an outline with special reference to Waseda University. *Waseda Economic Papers* No. 2, p. 15–27 (1958)

Kuroha, Hyojiro (黒羽兵治郎): A historio-geographical sketch of Osaka. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 1–8 (Feb. 1958)

Miyamoto, Mataji (宮本又次): La décadence et l'abolition des Kabunakama. *Osaka Economic Papers* Vol. 5, no. 1, p. 9–32 (Aug. 1956)

Miyamoto, Mataji (宮本又次): Le progrès et l'activité de l'etude de l'histoire économique du Japon (1–3). *Osaka Economic Papers* Vol. 5, no. 1, p. 58–72; Vol. 5, no. 2, p. 27–40; Vol. 6, no. 1, p. 48–62 (Aug. 1956; Jan. & Nov. 1957)

Miyamoto, Mataji (宮本又次): The merchants of Osaka. *Osaka Economic Papers* Vol. 7, no. 1, p. 1–13 (Sept. 1958)

Nishimura, Takao (西村孝夫): The English factory Hirado. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1, p. 47–52 (Mar. 1957)

Ohara, Keiji (小原敬士) *ed.* : Japanese trade & industry in the Meiji-Taisho era, tr. and adapted by Okata Tamotsu (大方 保). Tokyo, Obunsha, 1958. vi, 566p.

Ono, Kikunosuke (大野喜久之輔) : Inflation in the early era of Meiji. *Kobe University Economic Review* No. 2, p. 79–102 (1956)

Sakudo, Yotaro (作道洋太郎): Monetary System in federal Japan. *Osaka Economic Papers* Vol. 5, no. 1, p. 33–57 (Aug. 1956)

Sakudo, Yotaro (作道洋太郎) : The reform of the monetary system in the early years of Meiji. *Osaka Economic Papers* Vol. 6, no. 1, p. 32–47 (Sept. 1957)

Seki, Junya (関 順也): The historical meaning of the revision of the land tax system. *Kyoto University Economic Review* Vol. 26, no. 2, p. 47–70 (Oct. 1956)

Shinbo, Hiroshi (新保 博) : A study of the growth of cotton production for the market in the Tokugawa era. *Kobe University Economic Review* No. 1, p. 55–70 (1955)

Takeyasu, Shigeji (竹安繁治): The farm rent in Kawachi district in the late Tokugawa period. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 108–112 (Feb. 1958)

Toyoda, Takeshi (豊田 武): The character of the feudal society in Japan (1). *Annals of the Hitotsubashi Academy* Vol. 8, no. 1, p. 29–35 (Oct. 1957)

Ueda, Tatsunosuke (上田辰之助): Saikaku's 'Economic man'. A comparative study in socio-economic history, with illustrations from Saikaku and Augustan English literature. *Annals of the Hitotsubashi Academy* Vol. 7, no. 1, p. 10–32 (Oct. 1956)

V. *Commerce, International Trade, Transportation*

Arakawa, Yukichi (荒川祐吉): Small wholesalers in the cotton textiles marketing in Japan. *Annals of the School of Business Administration Kobe University* No. 1, p. 59–93 (1957)

Arita, Takeshi (有田 毅) : Postwar development of transportation (Ten years of reconstruction and development, part 3). *Contemporary Japan* Vol. 24, no. 4/6, p. 233–243 (1956)

Fujii, Junji (藤井潤二): The trade between Japan and India. *Monthly Circular, Survey of Economic Conditions in Japan* No. 320, p. 10–19 (July 1956)

Fujii, Shigeru (藤井 茂): Recovery and development of foreign trade firms in Kobe after the war.—On the basis of the censuses on the actual conditions of foreign traders in Kobe City. *Kobe University Economic Review* No. 3, p. 25–52 (1957)

Hara, Kakuten (原 覚天) : Economic development and foreign trade in Asia. *Asian Affairs* Vol. 3, no. 1, p. 1–12 (Mar. 1958)

Hayashi, Yujiro (林 雄二郎): The relation between reparations and foreign trade. *Asian Affairs* Vol. 1, no. 3, p. 260–273 (Sept. 1956)

Honiden, Yoshio (本位田祥男): Cooperative movement in Japan. 1. Ed. by Asia Kyokai. Tokyo, Maruzen, 1958. ix,311p.

Inoue, Tadakatsu (井上忠勝): Business problems in an international situation. *Kobe Economic and Business Review* No. 4, p. 215–222 (Oct. 1957)

Inoue, Tadakatsu (井上忠勝): The nature of the Morgan control. *Kobe Economic and Business Review* No. 5, p. 139–146 (Aug. 1958)

Japan. *Ministry of Transportation* : Transportation in Japan. Tokyo, the Ministry, 1958. 29p.

Katano, Hikoji (片野彦二): Econometric determination of foreign exchange rate of Japan for 1926–1953. *Kobe Economic and Business Review* No. 3, p. 9–25 (June 1956)

Kato, Masesaburo (加藤真勢三郎): Sources of credit information: The bank as its sources. *Meidai Shogaku Ronso* (明大商学論叢) Vol. 41, no. 4, p. 100–114 (Feb. 1958)

Kato, Masesaburo (加藤真勢三郎): Sources of credit information: The mercantile agency and other institutions. *Meidai Shogaku Ronso* (明大商学論叢) Vol. 42, no. 2, p. 81—108 (Sept. 1958)

Kawai, Shunzo (河合俊三): Recent trend in world trade and Southeast Asia. *Asian Affairs* Vol. 3, no. 1, p. 13–24 (Mar. 1958)

Kawata, Fukuo (川田富久雄): Industrialization and international trade. *Kobe Economic and Business Review* No. 3, p. 1–8 (June 1956)

Kawata, Fukuo (川田富久雄): A note on the recent trends of Japan's foreign trade. *Kobe Economic and Business Review* No. 4, p. 59–68 (Oct. 1957)

Kawata, Fukuo (川田富久雄): Some aspects of Japan's trade with South and South-East Asia, 1950–1957. *Kobe Economic and Business Review* No. 5, p. 43–51 (Aug. 1958)

Kojima, Kiyoshi (小島 清): Japanese foreign trade and economic growth—With special reference to the terms of trade. *Annals of the Hitotsubashi Academy* Vol. 8, no. 2, p. 143–168 (Apr. 1958)

Kubota, Takaaki (久保田高明): The present conditions of economic intercourse between Burma and Japan. *Monthly Circular, Survey of Economic Conditions in Japan* No. 317, p. 10–15 (Apr. 1956)

Matsui, Kiyoshi (松井 清) : Some notes on Japan's foreign trade. *Kyoto University Economic Review* Vol. 27, no. 2, p. 19–55 (Oct. 1957)

Matsui, Kiyoshi (松井 清): Essays on international trade. Tokyo, Science Council of Japan, 1958. 85p. (Science Council of Japan, Economic Series, No. 20)

Minobe, Ryokichi (美濃部亮吉): Real scale of foreign trade. *The Oriental Economist* Vol. 24, no. 547, p. 235–237 (May 1956)

Sawa, Sempei (佐波宣平): Frieght classification index of Japan National Railway. *Kyoto University Economic Review* Vol. 26, no. 1, p. 43–52 (Apr. 1956)

Sawa, Sempei (佐波宣平): The organisation of the shipping market. *Kyoto University Economic Review* Vol. 28, no. 1, p. 1–13 (Apr. 1958)

Shibata, Ginjiro (柴田銀次郎): Present status of Japan's shipping. *Kobe Economic and Business Review* No. 3, p. 27–43 (June 1956)

Shibata, Ginjiro (柴田銀次郎) : Tramp shipping freights and international trade. *Kobe Economic and Business Review* No. 4, p. 149–164 (Oct. 1957)

Shibata, Ginjiro (柴田銀次郎): Curves of diminishing values of Japanese merchant ships in proportion to their age. *Kobe Economic and Business Review* No. 5, p. 53–66 (Aug. 1958)

Sugi, Michisuke (杉 道助) : Trade and co-operation with South East Asia. *Contemporary Japan* Vol. 25, no. 1, p. 55–61 (Sept. 1957)

Takami, Shigeyoshi (高見重義): International evaluation of Sino-Japanese trade. *Asian Affairs* Vol. 2, no. 1, p. 63–72 (Mar. 1957)

Takami, Shigeyoshi (高見重義) : Prospects for trade with continental China. *Contemporary Japan* Vol. 25, no. 2, p. 208–223 (Apr. 1958)

Tanibayashi, Masatoshi (谷林正敏): Prerequisites to the expansion of Japan's trade with Southeast Asia. *Asian Affairs* Vol. 2, no. 3, p. 263–282 (Sept. 1957)

Uchida, Katsutoshi (内田勝敏): Japan's foreign trade after the war. With special emphasis on the structure of foreign markets. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1, p. 117–132 (Mar. 1957)

Uchida, Katsutoshi (内田勝敏): Trading firms of Japan—the process of their formation and activities before the Pacific War. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 97–107 (Feb. 1958)

Ushiba, Nobuhiko (牛場信彦): Possibility of expanding trade with the communist bloc. *Asian Affairs* Vol. 3, no. 1, p. 71–79 (Mar. 1958)

Watanabe, Taro (渡辺太郎): Over-population and international trade. *Osaka Economic Papers* Vol. 4, no. 3, p. 23–38 (Feb. 1956)

Yamamoto, Hiromasa (山本泰督): On the regulating policy of Japan against the shipping conference.—Especially in relation to the refusal of the entry to new comers. *Kobe Economic and Business Review* No. 4, p. 177–194 (Oct. 1957)

Yamamoto, Kumaichi (山本熊一): Trade problems with China. *Contemporary Japan* Vol. 25, no. 3, p. 363–398 (Sept. 1958)

Yashiro, Masamoto (八城政基): The commodity terms of trade of Asian countries. *Asian Affairs* Vol. 3, no. 1, p. 45–55 (Mar. 1958)

Yui, Hirotada (由比宏忠): Das Gesetz über die Schiffspfandbriefbanken in Deutschland. *Hokei Ronbunshu* (法経論文集) No. 3, p. 105–106 (Dec. 1955)

VI. *Management, Accounting*

Beika, Minoru (米花　稔): Spatial problems of business activities. *Kobe Economic and Business Review* No. 5, p. 129–137 (Aug. 1958)

Fujita, Keizo (藤田敬三): Management structure of small and medium enterprises. *Asian Affairs* Vol. 2, no. 2, p. 123–141. (June 1957)

Hirata, Takao (平田隆夫): Der Betriebsausschuss in Japan. *Osaka Economic Papers* Vol. 6, no. 1, p. 25–31 (Sept. 1957)

Iino, Toshio (飯野利夫): Accounting classifications of assets. *Annals of the Hitotsubashi Academy* Vol. 6, no. 2, p. 66–78 (Apr. 1956)

Iino, Toshio (飯野利夫): Accounting principles underlying net worth increasing theory. *Annals of the Hitotsubashi Academy* Vol. 7, no. 2, p. 144–151 (Apr. 1957)

Iino, Toshio (飯野利夫): Significance of realization principle in accounting. *Annals of the Hitotsubashi Academy* Vol. 9, no. 2, p. 194–204 (Apr. 1959)

Inoue, Tadakatsu (井上忠勝): Note on the ZAIBATSU combines. *Kobe Economic and Business Review* No. 3, p. 125–132 (June 1956)

Japan. *Economic Planning Board*: Statistical analysis of medium and small enterprises in Japan. *Asian Affairs* Vol. 2, no. 2, p. 195–217 (June 1957)

Japan. *Ministry of Labor*: Medium and small enterprises and vocational training in Japan. *Asian Affairs* Vol. 2, no. 2, p. 183–194 (June 1957)

Kawakami, Tameji (川上為治): Administration for development of smaller industries in Japan. *Asian Affairs* Vol. 2, no. 2, p. 172–183 (June 1957)

Kimizuka, Yoshiro (君塚芳郎) : A paradox: Depreciation and replacement in capitalist production (2). *Denki Tsushin Daigaku Gakuho* (電気通信大学学報 人文社会編) No. 9, p. 75–97 (Dec. 1957)

Kiuchi, Kaichi (木内佳市): The changing concept of asset and depreciation—An accountant's note. *Osaka Economic Papers* Vol. 7, no. 2, p. 21–30 (Feb. 1959)

Kobayashi, Yoshimoto (古林喜楽): Advanced training for business executives in Japan. *Annals of the School of Business Administration Kobe University* No. 1, p. 1–3 (1957)

Kubota, Otojiro (久保田音次郎): Basic principle of cost accounting. *Annals of the School of Business Administration Kobe University* No. 1, p. 29–37 (1957)

Kurosawa, Kiyoshi (黒沢 清) : A revised statement of business accounting principles. Tokyo, Science Council of Japan, 1955. 29p. (Science Council of Japan, Economic Series, No. 7)

Mesaki, Kenji (目崎憲司) : Rationalization and monopoly–with reference to the concentration of economic power. (to be cont.) *Osaka Economic Papers* Vol. 4, no. 3, p. 1–8 (Feb. 1956)

Minoguchi, Tokijiro (美濃口時次郎): Productivity and wage problem of Japan's medium and small manufacturing enterprises. *Asian Affairs* Vol. 2, no. 2, p. 142–153 (June 1957)

Miyamoto, Masaaki (宮本匡章): A report on Schmalenbach's Principle of comparability.—Das Prinzip der Vergleichbarkeit. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 133–141 (Feb. 1958)

Nishikawa, Kojiro (西川孝治郎): Origin of "Cash method bookkeeping" in Japan. Tokyo, Science Council of Japan, 1956. 23p. (Science Council of Japan, Economic Series, No. 11)

Nose, Nobuko (能勢信子): On the effect of accelerated amortization for tax purpose. *Kobe Economic and Business Review* No. 5, p. 147–158 (Aug. 1958)

The Oriental Economist: Japan company directory, 1958. Tokyo, the Oriental Economist, 1957. 286p.

Sasaki, Seiji (佐々木誠治): The distinction between "Shasen" and "Shagaisen" as historical concepts in Japanese shipping. *Kobe Economic and Business Review* No. 3, p. 45–54 (June 1956)

Sasaki, Seiji (佐々木誠治): A little study on the transition from sailing vessel to steamer in Japan. *Kobe Economic and Business Review* Vol. 4, p. 165–176 (Oct. 1957)

Sasaki, Seiji (佐々木誠治): The modernization of Japanese shipping based on the transportation of Hokkaido marine products. *Kobe Economic and Business Review* No. 5, p. 67–76 (Aug. 1958)

Sato, Koichi (佐藤浩一): Productivity and wages in manufacturing industry in post-war Japan. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 113–123 (Feb. 1958)

Seki, Miyosaku (関 未代策): Japan's small enterprises and financial problems. *Asian Affairs* Vol. 2, no. 2, p. 154–171 (June 1957)

Suzuki, Yasuzo (鈴木安三): Sources of industrial funds of enterprises. *Monthly Circular, Survey of Economic Conditions in Japan* No. 327, p. 9–18 (Feb. 1957)

Suzuki, Yasuzo (鈴木安三): Revision of anti-monopoly law and slower rate of economic growth. *Monthly Circular, Survey of Economic Conditions in Japan* No. 348, p. 9–13 (Nov. 1958)

Takada, Kaoru (高田 馨): Step-Cost—(Sprungkosten). *Osaka Economic Papers* Vol. 6, no. 2, p. 31–38 (Feb. 1958)

Takenaka, Tatsuo (竹中竜雄): Business and government: review from the standpoint of public utilities and historical studies of American Public Utility Commissions. Tokyo, Science Council of Japan, 1958. 51p. (Science Council of Japan, Economic Series, No. 21)

Tasugi, Kisou (田杉 競): Problems on productivity of Japanese smaller industry. *Asian Affairs* Vol. 2, no. 4, p. 427–441 (Dec. 1957)

Urabe, Kuniyoshi (占部都美): The separation of ownership and management in the large corporations in Japan. *Annals of the School of Business Administration Kobe University* No. 1, p. 5–19 (1957)

Watanabe, Susumu (渡辺 進): Disposition of cost variances in Japanese tax law. *Kobe Economic and Business Review* No. 3, p. 87–95 (June 1956)

Watanabe, Susumu (渡辺 進): The price fluctuation reserve system in Japan. *Kobe Economic and Business Review* No. 4, p. 195–204 (Oct. 1957)

Watanabe, Susumu (渡辺 進): Replacement cost and Lifo cost. *Kobe Economic and Business Review* No. 5, p. 121–127 (Aug. 1958)

Yamamoto, Hideo (山本秀雄): Can the anti-monopoly legislations preserve competition? *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1, p. 109–116 (Mar. 1957)

Yamanaka, Tokutaro (山中篤太郎) & Kobayashi, Yoshio (小林義雄): The history and structure of Japan's small and medium industries with two specific surveys.

Tokyo, Science Council of Japan, 1957. 89p. (Science Council of Japan, Economic Series, No. 15)

Yamanaka, Tokutaro (山中篤太郎) & Takizawa, Kikutaro (滝沢菊太郎): Japanese "small-medium" business and optimum size—A comparison with U.S. textile industries. *Asian Affairs* Vol. 2, no. 2, p. 103-122 (June 1957)

Yamashita, Katsuji (山下勝治) : Capital expenditure and revenue expenditure. *Annals of the School of Business Administration Kobe University* No. 1, p. 21–27 (1957)

VII. *Finance, Money, Insurance*

Arai, Masao (荒井正夫): Development of local banking in Japan. Period of development of industrial capitalism. Tokyo, Science Council of Japan, 1958. 45p. (Science Council of Japan, Economic Series, No. 19)

Fujimoto, Kotaro (藤本幸太郎): The essential features of voluntary salvage. *Annals of the Hitotsubashi Academy* Vol. 7, no. 1, p. 1–9 (Oct. 1956)

Fujita, Masahiro (藤田正寛): The banking system in the middle Meiji era (1870–1910). *Kobe Economic and Business Review* No. 3, p. 55–84 (June 1956)

Fujita, Masahiro (藤田正寛): The development of overseas banking system in Japan in the Meiji era. *Kobe Economic and Business Review.* No. 4, p. 69–90 (Oct. 1957)

Fukuda, Keitaro (福田敬太郎): An analysis of securities market in Japan. *Annals of the School of Business Administration Kobe University* No. 1, p. 39–58 (1957)

Hara, Kakuten (原　覚天): Greater independence of Asian countries in finance. *Asian Affairs* Vol. 2, no. 4, p. 370–384 (Dec. 1957)

Hirata, Keiichiro (平田敬一郎): Foreign investment to Japan. *The Oriental Economist* Vol. 26, no. 575, p. 481–486 (Sept. 1958)

Ieda, Shigeichi (家田茂一): Role and functions of central banks in Asian countries. *Asian Affairs* Vol. 2, no. 4, p. 415–426 (Dec. 1957)

Kato, Yoshisaku (加藤由作) : On inherent defect of the subject-matter insured. *Annals of the Hitotsubashi Academy* Vol. 8, no. 1, p. 1–6 (Oct. 1957)

Kawaguchi, Shinji (川口慎二): Bank liquidity theory reconsidered—A critical note on Mr. Prochnow's approach. *Osaka Economic Papers* Vol. 6, no. 2, p. 59–66 (Feb. 1958)

Koizumi, Akira (小泉　明): Foreign exchange reserves as a buffer in Japanese countercyclical policy. *Annals of the Hitotsubashi Academy* Vol. 9, no. 2, p. 255–266 (Apr. 1959)

Miyashita, Tadao (宮下忠雄): The silver tael system in modern China. *Kobe University Economic Review.* No. 2, p. 11–32 (1956)

Miyata, Kiyozo (宮田喜代蔵): Concept and types of devaluation. *Kobe University Economic Review* No. 1, p. 1–22 (1955)

Niino, Kojiro (新野幸次郎): The formation of the Japanese finance capital and its characteristics. *Kobe University Economic Review* No. 2, p. 53–68 (1956)

Noritake, Yasuo (則武保夫): The development of monetary and banking system in Japan, 1932–1945. *Kobe University Economic Review* No. 2, p. 69–77 (1956)

Perlo, Victor: The empire of high finance. *Sekai Keizai Hyoron* (世界経済評論) No. 38, p. 62–74 (June 1957)

Sanwa survey. Pub. by the Sanwa Bank Ltd. Osaka. No. 1 (Aug. 1956)—11 (Nov. 1958)

Shinjo, Hiroshi (新庄 博): History of yen—Its developments in the Japanese economy. (1) *Kobe Economic and Business Review* No. 5, p. 1–22 (Aug. 1958)

Shinjo, Hiroshi (新庄 博): Review of studies on money and banking, 1954–57. *Japan Science Review, Economic Sciences* No. 5, p. 1–12 (1958)

Tsuya, Shoichi (津谷彰一): Sources of industrial funds after the war. *Monthly Circular, Survey of Economic Conditions in Japan* No. 336, p. 12–24 (Nov. 1957)

Yamamoto, Hiromasa (山本泰督): Development of the marine insurance industry in Japan in the Meiji period—in relation to the capitalistic development of Japan. *Kobe Economic and Business Review* No. 5, p. 77–88 (Aug. 1958)

Yao, Jiro (矢尾次郎): Money-effect routes.—Revival of money. *Kobe University Economic Review* No. 3, p. 53–65 (1957)

Yokoo, Tomeo (横尾登米雄): Insurance interest and insurable relation—An observation of the views held by various Japanese author, with criticism thereon. *Songai Hoken Kenkyu* (損害保険研究) Vol. 19, no. 1, p. 229–250 (Feb. 1957)

Yoshino, Toshihiko (吉野俊彦): Economic recovery and banking system. *Contemporary Japan* Vol. 24, no. 10–12, p. 570–595 (Apr. 1957)

VIII. *Public Finance*

Fujita, Sei (藤田 晴): Professor Maxwell of fiscal policy. *Osaka Economic Papers* Vol. 5, no. 2, p. 41–45 (Jan. 1957)

Kimura, Motokazu (木村元一): Conditions for direct taxation and other essays. Tokyo, Science Council of Japan, 1958. 130p. (Science Council of Japan, Economic Series, No. 17)

Kimura, Motokazu (木村元一): Fiscal policy and industrialization in Japan 1868–1895. *Annals of the Hitotsubashi Academy* Vol. 6, no. 2, p. 12–28 (Apr. 1956)

Kimura, Motokazu (木村元一): An unrealized plan—The value-added tax in Japan. *Annals of the Hitotsubashi Academy* Vol. 8, no. 2, p. 113–126 (Apr. 1958)

Kinoshita, Kazuo (木下和夫): Ueber das neue Werk der Finanzwissenschaft von Prof. Amonn. *Osaka Economic Papers* Vol. 4, no. 3, p. 17–21 (Feb. 1956)

Kinoshita, Kazuo (木下和夫): The role of fiscal policy in the economic development of backward countries. *Osaka Economic Papers* Vol. 7, no. 1, p. 14–30 (Sept. 1958)

Kurimoto, Hiroshi (栗本 弘): The development programs of Asian countries—Expenditures and public finance. *Asian Affairs* Vol. 2, no. 4, p. 398–414 (Dec. 1957)

Local Government finance. *The Oriental Economist* Vol. 24, no. 546, p. 176–178 (Apr. 1956)

Shima, Yasuhiko (島 泰彦): Policy of democratization and significance of the local administration investigation committee. *Kyoto University Economic Review* Vol. 27, no. 2, p. 56–71 (Oct. 1957)

Shiotani, Tadao (塩谷忠男): Postwar progress in public finance (Ten years of reconstruction and development, part 2). *Contemporary Japan* Vol. 24, no. 1/3, p. 33–46 (1956)

Takahashi, Chotaro (高橋長太郎): Public investment in postwar Japan. *Annals of the Hitotsubashi Academy* Vol. 8, no. 2, p. 101–112 (Apr. 1958)

Tanigawa, Kanzo (谷川寛三): Asiatic characteristics in taxation system. *Asian Affairs* Vol. 2, no. 4, p. 385–397 (Dec. 1957)

Tokoyama, Tsunesaburo (時子山常三郎): Present-day public finance and trends in historical development. Tokyo, Science Council of Japan, 1956. 84p. (Science Council of Japan, Economic Series, No. 10)

Yamaguchi, Tadao (山口忠夫): On prof. Schmölders's Finanzpolitik, 1955. *Hikone Ronso* (彦根論叢) No. 46/47, p. 245–268 (Sept. 1958)

IX. *Industry*

Aki, Koichi (安芸皎一) : Industrial development and technological progress in Japan. *Asian Affairs* Vol. 1, no. 2, p. 176–188 (June 1956)

Aki, Koichi (安芸皎一): Japan's energy resources. *Japan Quarterly* Vol. 3, no. 3, p. 287–292 (July/Sept. 1956)

Asano, Nagamitsu (浅野長光): Japan's deep-sea fishing industry. (Changing Japan 4) *Japan Quarterly* Vol. 5, no. 2, p. 236–248 (Apr./June 1958)

Ashizawa, Oyoshi (葦沢大義): Iron and steel industry reconstructed. *Contemporary Japan* Vol. 24, no. 4/6, p. 273–284 (1956)

Azami, Eikichi (莇 栄吉): The shipbuilding industry: past and present. (Changing Japan 5) *Japan Quarterly* Vol. 5, no. 3, p. 370–380 (July/Sept. 1958)

Beika, Minoru (米花 稔): Structure of industrial districts in Japan—The cases of Tokyo, Osaka and Nagoya. *Kobe Economic and Business Review* No. 3, p. 97–124 (June 1956)

Beika, Minoru (米花 稔): Locational problem in the new major branches of Japanese industries from 1954 to 1956. *Kobe Economic and Business Review* No. 4, p. 205–214 (Oct. 1957)

Danno, Nobuo (団野信夫): Land from the the sea. Japan's reclamation projects. *Japan Quarterly* Vol. 4, no. 3, p. 373–382 (July/Sept. 1957)

Electric power in Japan today. *The Oriental Economist* Vol. 26, no. 570, p. 191–203 (Apr. 1958)

Hayami, Nagao (速水永夫): Introduction of atomic energy and shifting emphasis of Japan's industrial structure to heavy chemical industries. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1, p. 15–28 (Mar. 1957)

Iiyama, Tahei (飯山太平): Development of fishing industry in Asia and Japan's cooperation. *Asian Affairs* Vol. 2, no. 3, p. 302–312 (Sept. 1957)

Ina, Nobuo (伊奈信男): Japan's photographic industry. (Changing Japan 6) *Japan Quarterly* Vol. 5, no. 4, p. 507–514 (Oct./Dec. 1958)

Ishida, Ryuziro (石田竜次郎): The industrialization of Japan: a geographical analysis. *Annals of the Hitotsubashi Academy* Vol. 7, no. 1, p. 61–80 (Oct. 1956)

Japan Society of Industrial Machinery Manufacturers: Top level of industrial machines manufactured in Japan. Tokyo, the Society, 1957. ii, 71p.

Katayama, Yutaka (片山 裕): Progress in automobile industry. *Contemporary Japan* Vol. 24, no. 10/12, p. 622–625 (Apr. 1957)

Koyama, Kikuya D. (小山喜久彌〔伝三〕): Foreign technical aids in manufacturing industries in Japan, with special reference to the latest trend of the attitude of Japanese towards them. *Meijo Shogaku* (名城商学) Vol. 5, no. 3/4, p. 1–25 (Mar. 1956)

The Nihon Keizai Shimbun: Industrial review of Japan, 1956. Vol. 1, Tokyo. 1955. 435 p.

Ohara, Soichiro (大原総一郎): From cotton to vinylon: a short history of the textile industry. (Changing Japan 2) *Japan Quarterly* Vol. 4, no. 4, p. 510–518 (Oct./Dec. 1957)

Ono, Kazuichiro (小野一一郎) & Namba, Heitaro: The growth of iron and steel industry in Japan and the problem of raw materials (2). *Kyoto University Economic Review* Vol. 25, no. 2, p. 50–69 (Oct. 1955)

Taga, Yutaka (多賀　裕): Development of shipbuilding industry. *Contemporary Japan* Vol. 24, no. 1/3, p. 68–87 (1956)

Yamabe, Takashi (山辺　孝): Structural improvements in industry in the world and in Japan. *Monthly Circular, Survey of Economic Conditions in Japan* No. 334, p. 11–23 (Sept. 1957)

Yamazaki, Teiichi (山崎禎一): Cement industry, as an indicator of industrialization in under-developed countries. *Kobe University Economic Review* No. 3, p. 67–77 (1957)

X. *Agriculture*

Dantwala, M. L.: Agriculture and economic development in India. *Keizai Kenkyu* (経済研究，一橋大) Vol. 8, no. 4, p. 330–333 (Oct. 1957)

Doi, Akira (土井　明): The present situation of agricultural collectivization in China. *Asian Affairs* Vol. 2, no. 1, p. 47–62 (Mar. 1957)

Farm economy of Japan. *The Oriental Economist* Vol. 24, no. 552, p. 484–487 (Oct. 1956).

Japan. *Ministry of Agricltuer and Forestry, Statistics and Survey Division:* Outline of statistics and survey of agriculture (preliminary). Tokyo, the Division, 1958. 105p.

Japan. *Ministry of Agriculture and Forestry, Statistics and Survey Division:* Report of the 1955 census of agriculture. Tokyo, the Division, 1958. 96p.

Japan. *Ministry of Agriculture and Forestry, Statistics and Survey Division:* Statistical abstract of Ministry of Agriculture and Forestry, 1956; 1957. Tokyo, the Ministry, 1957–1958. vii, 105; v, 133p.

Kaihara, Motosuke (貝原基介): The effects of the land reform upon productivity in Japanese agriculture. *Meiji Gakuin Ronso* (明治学院論叢) Vol. 46, no. 2, p. 1–23 (Oct. 1957)

Kawano, Shigeto (川野重任): Features agricultural policy in the postwar rehabilitation of Japan. *Asian Affairs* Vol. 1, no. 2, p. 149–163 (June 1956)

Kishimoto, Minoru (岸本　実): Land use and out-migration of farmers in Shikoku.

Journal of Gakugei, Tokushima University (学芸紀要，徳島大学) No. 5, p. 43–50 (Mar. 1956)

Kobayashi, Masaichi (小林政一): Recent agricultural land policy and land tenure situation in Japan. *Hokei Ronso* (法経論叢) No. 4, p. 89–96 (Dec. 1956)

Lindstrom, David E: Outlook for the land reform in Japan. *Contemporary Japan* Vol. 24, no. 113, p. 88–100 (1956)

Noda, Tetsugoro (野田鉄五郎): Agriculture: its reconstruction and development (Ten years of reconstruction and development, part 2). *Contemporary Japan* Vol. 24, no. 123, p. 47–54 (1956)

Noda, Tsutomu (野田　孜): Labor's relative share in the Japanese agriculture since 1878. *Annals of the Hitotsubashi Academy* Vol. 9, no. 2, p. 244–254 (Apr. 1959)

Ohkawa, Kazushi (大川一司): International comparisons of productivity agriculture. Tokyo, Ministry of Agriculture and Forestry, 1949. 35p.

Takebe, Yoshito (武部善人): Some problems in agriculture in the suburban districts of cities. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 2, p. 44–53 (Feb. 1958)

Togari, Yoshiji (戸刈義次): Expansion of agricultural production in Asia and Japanese farming methods. *Asian Affairs* Vol. 2, no. 3, p. 313–325 (Sept. 1957)

XI. *Sociology, Population*

Abe, Shiro (阿部志郎): Current problems of settlement and neighborhood center in Japan. *Aoyama Gakuin Ronso* (青山学院論叢) No. 48, pt. 1, p. 1–12 (Feb. 1958)

Chikazawa, Keiichi (近沢敬一): The trend of sociology in Japan. *Yamaguchidai Bungaku* (山口大文学) Vol. 8, no. 2, p. 1–15 (Dec. 1957)

Hirata, Tomitaro (平田富太郎): International social security and Japanese social systems. *Waseda Economic Papers* No. 2, p. 28–46 (1958)

Iimoto, Nobuyuki (飯本信之): Die politischen Zeutren Japans und ihre geographische Wanderung. *Journal of the Cultural Science, Ochanomizu University* (人文科学紀要 お茶の水女子大) No. 3, p. 1–8 (Mar. 1956)

Indian prime minister J. Nehru's speeches. (India: Journal of the Indo-Japanese Association of Japan, Vol. 6. no, 1. p. 1–70. 1958)

Inoue, Kiyoshi (井上　清): A historical outline of studies in the "Ziyu minken" movement. *Zinvn, Kyoto University* No. 2, p. 23–50 (1958)

Itagaki, Yoichi (板垣与一): Some aspect of Asian nationalism today. *Asian Affairs* Vol. 1, no. 4, p. 341–363 (Dec. 1956)

Ito, Wataru (伊藤 彌): The transition of British colonial policy reviewed. *Tokyo Keidai Gakkai-shi* (東京経大学会誌) No. 17, p. 1–47 (Mar. 1957)

Japan. *Welfare Minster's Securetariat :* A brief report on public health administration in Japan. Tokyo, the Securetariat, 1958. 46p.

Kawai, Hayao (河合隼雄): A modification of the multiple choice Rorschach for Japanese. *Tenri Daigaku Gakuho* (天理大学学報) No. 25, p. 168–186 (Mar. 1958)

Kitaoka, Juitsu (北岡寿逸): Over-population and family planning in Japan. Tokyo, Science Council of Japan, 1957. 71p. (Science Council of Japan, Economic Series, No. 14)

Minami, Hiroshi (南 博): On some characteristics of mass entertainment in contemporary Japan. A social psychological aspect of Japanese popular songs and films. *Annals of the Hitotsubashi Academy* Vol. 7, no. 2, p. 133–143 (Apr. 1957)

Minami, Hiroshi (南 博) : On the system of social behavior. *Annals of the Hitotsubashi Academy* Vol. 9, no. 1, p. 68–75 (Oct. 1958)

Muramatsu, Yuji (村松祐次) : Nationalism and communism in China. *Asian Affairs* Vol. 1. no. 4, p. 379–391 (Dec. 1956)

Naito, Seichu (内藤正中) : The campaign of petitioning for the inauguration of a national diet—The process of the organization of the Sanyo Liberal Party—. *Kyoto University Economic Review* Vol. 27, no. 1, p. 32–52 (Apr. 1957)

Nishino, Terutaro (西野照太郎): From Bandung to Suez: A note on Arab-Asian nationalism. *Asian Affairs* Vol. 1, no. 4, p. 392–399 (Dec. 1956)

Okada, Dave M. : The social status-rank of minority groups in American society. *Shakaikagaku Tokyu* (社会科学討究) Vol. 2, no. 2, p. 1–18 (Feb. 1957)

Ono, Kazuichiro (小野一一郎): The problem of Japanese emigration. *Kyoto University Economic Review* Vol. 28, no. 1, p. 40–54 (Apr. 1958)

Postwar housing policy. *The Oriental Economist* Vol. 25, no. 558, p. 181–183 (Apr. 1957)

Royama, Masamichi (蠟山政道): Asian nationalism and Japan. *Asian Affairs* Vol. 1, no. 4, p. 331—340 (Dec. 1956)

Saito, Hiroshi (斉藤広志): A assimilação do imigrante Japonês no Brasil. *Kobe Economic and Business Review* No. 5, p. 89–101 (Aug. 1958)

Sakamoto, Tokumatsu (坂本徳松): Indian nationalism and socialism: Its history and problems. *Asian Affairs* Vol. 1, no. 4, p. 364–378 (Dec. 1956)

Tachi, Minoru (館 稔): The population problems. (Changing Japan 3) *Japan Quarterly* Vol 5, no. 1, p. 103–112 (Jan.-Mar. 1958)

Tanaka, Kaoru (田中 薫): Japanese immigrants in Amazonia and their future. *Kobe University Economic Review* No. 3, p. 1–24 (1957)

Tokoyama, Tsunesaburo (時子山常三郎): The technological interpretation of history as a method of social science. *Waseda Economic Papers* No. 1, p. 38–54 (1955)

Uchida, Naosaku (内田直作): Economic activities of the Chinese in Southeast Asia. *Asian Affairs* Vol. 1, no. 1, p. 50–59 (Mar. 1956)

XII. *Labor*

Ayusawa, Iwao (鮎沢 巖): Japanese trade union today. *The Oriental Economist* Vol. 25, no. 555, p. 35–39 (Jan. 1957)

Ayusawa, Iwao (鮎沢 巖): Japanese labor in 1957. *The Oriental Economist* Vol. 26, no. 567, p. 32–34 (Jan. 1958)

Employment in Japan. *The Oriental Economist* Vol. 24, no. 544, p. 61–64 (Feb. 1956)

Japan. *Ministry of Labor.* Japan labor year book for 1956. Tokyo, the Ministry, 1958. 86p.

Minoguchi, Tokijiro (美濃口時次郎): The employment problem in Japan in next ten years. *Annals of the Hitotsubashi Academy* Vol. 8, no. 2, p. 169–175 (Apr. 1958)

Okochi, Kazuo (大河内一男): Labor in modern Japan. Tokyo, Science Council of Japan, 1958, 117p. (Science Council of Japan, Economic Series, No. 18)

Rising living standards of workers. *The Oriental Economist* Vol. 24, no. 545, p. 124–126 (Mar. 1956)

Sato, Koichi (佐藤浩一): A note on problems of wages. *Bulletin of University of Osaka Prefecture, Ser. D.* No. 1, p. 133–137 (Mar. 1957)

Umemura, Mataji (梅村又次): Labor's relative share in the Japanese manufacturing industry since 1900. *Annals of the Hitotsubashi Academy* Vol. 8, no. 2, p. 176–187 (Apr. 1958)

Wage systems in Japan. *The Oriental Economist* Vol. 24, no. 549, p. 331–334 (July 1956)

Yamanaka, Tokutaro (山中篤太郎): On latent unemployment. An interpretation as an economic problem. *Annals of the Hitotsubashi Academy* Vol. 6, no. 2, p. 1–11 (Apr. 1956)

XIII. *Statistics*

Akaike, Hirotsugu (赤池弘次): Monte Carlo method applied to the solution of simultaneous linear equations. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 2, p. 107–113 (1956)

Akaike, Hirotsugu (赤池弘次): On the distribution of the product of two—distributed variables. *Annals of the Institute of Statistical Mathematics* Vol. 8, no, 1. p. 53–54 (1956)

Akaike, Hirotsugu (赤池弘次): On a zero-one process and some of its applications. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 2, p. 87–94 (1956)

Akaike, Hirotsugu (赤池弘次): On ergodic property of a tandem type queueing process. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 1, p. 13–21 (1957)

Aoyama, Hirojiro (青山博次郎): On the evaluation of the sampling error of a certain determinant. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 1, p. 27–33 (1956)

Aoyama, Hirojiro (青山博次郎): Sampling fluctuations of the test reliability. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 3, p. 129–143 (1957)

Aoyama, Hirojiro (青山博次郎): On a certain statistic in a social group. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 1, p. 23–30 (1957)

Bank of Japan, Statistics Dept: Economic statistics of Japan (本邦経済統計), 1955; 1956; 1957. Tokyo, the Dept. 1956–58. 3 vols. (Japanese & English)

Bank of Japan, Statistics Dept: Tokyo retail price index annual (東京小売物価指数年報), 1956; 1957; 1958. Tokyo, the Dept. 1957–1959. each 36p. 3 vols. (Japanese & English)

Bank of Japan, Statistics Dept: Wholesale price index annual (卸売物価指数年報), 1956; 1957; 1958. Tokyo, the Dept. 1957–1959. each 92p. 3 vols. (Japanese & English)

Cotton Economics Research Institute & Japan Cotton Traders' Association: The Japan cotton statistics and related data 1956; 1957; 1958. Osaka, the Institute, 1956–1958. 3 vols.

The Cotton Statistical Journal, Pub. by the Cotton Economics Research Institute & the Japan Cotton Traders' Association. Osaka. No. 84 (1956)—95 (1958)

Fujimoto, Hiroshi (藤本 熈): Note on fitting a straight line when both variables are subject to error and some applications. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 3, p. 159–167 (1956)

Fujimoto, Hiroshi (藤本　熙): On the distribution-free classification of an individual into one of two groups. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 2, p. 105–112 (1956)

Fujimoto, Hiroshi (藤本　熙): A note on the probability of the correct classification when the distributions are not specified. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 1, p. 31–36 (1957) .

Fujimoto, Kotaro (藤本幸太郎): The law of great numbers and the principles of probability. *Annals of the Hitotsubashi Academy* Vol. 9, no. 2, p. 169–178 (Apr. 1959)

Hayashi, Chikio (林　知己夫): Note on sampling from a sociometric pattern. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 1, p. 49–52 (1957)

Higuchi, Isao (樋口伊佐夫): Note on the decision of optimal tolerance in the design of a simple random assembling. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 2, p. 113–118 (1956)

Iochi, Ryotaro (伊大知良太郎): On biases of the price-deflator. *Annals of the Hitotsubashi Academy* Vol. 8, no. 1, p. 7–12 (Oct. 1957)

Institute of Statistical Mathematics, Japan: Statistical bibliography in Japan. Tokyo, the Institute, 1958. 58p.

Ishida, Masatsugu (石田正次) & Ikeda, Hiroji (池田裕治): Random number generator. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 2, p. 119–126 (1956)

Ishii, Goro (石井五郎): Test of fit in life test. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 2, p. 117–125 (1958)

Ishii, Keiichi (石井恵一): Some investigations of the relation between distributions and their moments. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 1, p. 1–11 (1957)

Ishii, Keiichi (石井恵一): Note on a characterization of unimodal distributions. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 3, p. 173–184 (1958)

Japan. *Administrative Management Agency:* Statistical notes of Japan. No. 7–13. Tokyo, the Agency. 1956-57.

Japan. *Office of the Prime Minister, Bureau of Statistics :* Japan statistical yearbook (日本統計年鑑), 1955–56 and 1957. Tokyo, the Bureau, 1957. 2 vols. (Japanese & English)

Japan. *Office of the Prime Minister, Bureau of Statistics:* Annual report on the family income and expenditure survey (家計調査年報) 1955; 1956; 1957. Tokyo, the Office. 1956—58. 238; 220; 204; 3vols. (Japanese & English)

Japan. *Office of the Prime Minister, Bureau of Statistics:* 1955 population census of Japan (国勢調査報告), vol, 5, no. 1–19, 21–24, 27–29, 31–46. Tokyo, the Bureau, 1956–58. (Japanese & English)

Japan. *Office of the Prime Minister, Bureau of Statistics:* 1957 establishment census of Japan (事業所統計調査報告), vol. 2, no. 2–4, 6–12, 14–19, 21–22, 24, 25, 29–34, 36–41, and 43–46. Tokyo, the Bureau, 1958. (Japanese & English)

Japan. *Office of the Prime Minister, Bureau of Statistics :* Report on the revised figures of labor force survey. (労働力調査改算結果報告) Tokyo, the Bureau, 1957. 124p.

Japan. *Office of the Prime Minister, Bureau of Statistics:* Statistical handbook Oct. '56, of Japan. Tokyo, the Bureau, 1958. 123p.

Japan. *Office of the Prime Minister, Bureau of Statistics:* Report on the special survey of the labor force survey (労働力調査臨時調査報告): Oct. '55, Mar. '56, Mar. '57, and Oct. '57. Tokyo, the Bureau, 1958. 74p.

Japan. *Ministry of Finance:* 1956; 1957 annual return of the foreign trade of Japan: country by commodity (export). (日本外国貿易年表,国別,品別(輸出)編) Tokyo, the Ministry, 1957–58 xii, 2188; xii, 2536p. 2vols. (Japanese & English)

Japan. *Ministry of Finance:* 1956; 1957 annual return of the foreign trade of Japan: country by commodity (import). (日本外国貿易年表,国別,品別(輸入)編) Tokyo, the Ministry, 1957–58. xii, 710; xii, 758p. 2 vols. (Japanese & English)

Japan. *Ministry of Finance:* 1955; 1956; 1957 annual return of the foreign trade of Japan: commodity by country. (日本外国貿易年表, 国別品別編) Tokyo, the Ministry, 1956–1958, xi, 1325; xii, 1704; xii, 1848p. 3 vols. (Japanese & English)

Japan. *Ministry of Foreign Affairs:* Statistical survey of economy of Japan, 1956; 1957; 1958. Tokyo, the Ministry. 1956–1958. 3 vols.

Japan. *Ministry of Labor, Divison of Labor Statistics and Research:* Yearbook of labor statistics (労働統計年報) 1955; 1956; 1957. Tokyo, the Division. 1956–1958. 426; 417; 471p. 3 vols. (Japanese and English)

Japan. *Ministry of Labor, Women's and Minor's Bureau:* Fujin Rodo Tokei Shiryo (婦人労働統計資料) 1953; 1954. Tokyo, the Bureau, 1954–1955. (Japanese and English)

Japan. *Welfare Minister's Securetariat, Division of Health and Welfare Statistics:* Vital Statistics, Japan (人口動態統計), 1955–1956. Tokyo, the Division, 1957–1958. 4 vols. (Japanese and English)

Japanese International Commission for UNESCO. Manual of demographic statistics in Japan. Tokyo, the Commission, 1958. 250 p.

Kanagawa Prefectural Government. Annual statistical survey returns of foreign trade of Yokohama (横浜外国貿易統計年鑑) for 1954–1956, by Kanagawa Prefectural Government, Yokohama Municipal Office, and Yokohama Foreign Trade Association. Yokohama, the Association, 1956–1958, 3vols. (Japanese & English)

Kimura, Hitoshi (木村 等): An approximation method in numerical computation of the Leontief's open input-output model. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 2, p. 115–122 (1956)

Kimura, Hitoshi (木村 等): On the errors of output due to the errors of technical coefficients in Leontief's open input-output models. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 3, p. 205–213 (1956)

Koniji, H. S.: Some estimates which minimize the least upper bound of a probability together with the cost of observation. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 3, p. 143–158 (1956)

Matsushita, Kameo (松下嘉米男) & Akaike, Hirotsugu (赤池弘次): Decision rules, based on the distance, for the problems of independence, invariance and two samples. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 2, p. 67–80 (1956)

Matsushita, Kameo (松下嘉米男) & Motoo, Minoru (本尾 実): On the fundamental theorem for the decision rule based on distance. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 3, p. 137–142 (1956)

Matsushita, Kameo (松下嘉米男): Decision rule based on the distance for the classification problem. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 2, p. 67–77 (1956)

Motoo, Minoru (本尾 実): Some theorems on the sum of positive random variables. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 3, p. 169–181 (1956)

Motoo, Minoru (本尾 実): On the Hoeffding's combinatrial central limit theorem. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 3, p. 145–154 (1957)

Muta, Akinori (牟田明徳) & Higuchi, Isao (樋口伊佐夫): Shape and size distribution of carbon black when it is crushed. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 2, p. 131–135 (1956)

Nishihira, Shigeki (西平重喜): Cross-national comparative study on social stratification and social mobility. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 3, p. 181–191 (1957)

Review of the activities in the studies of the statistical sciences in Japan. 1. Mathematical statistics, by Institute of Statistical Mathematics. 2. Population statistics, by Minoru Tachi (館　稔) 3. Economic statistics, by Ryotaro Iochi (伊大知良太郎) 4. Econometrics, by Isamu Yamada (山田　勇) *Japan Science Review, Economic Sciences* No. 3, p. 1–16 (1956)

Saito, Kinichiro (斉藤金一郎): Theoretical considerations on the use of supplementary information in sample survey designs (1, 2). *Jyochi Keizai Ronshu* (上智経済論集) Vol. 4, no. 2, p. 57–87 ; Vol. 5, no. 1, p. 49–72 (Mar.; June 1958)

Shibuya, Masaaki (渋谷政昭) & Toda, Hideo (戸田英雄): Tables of the probability density function of range in normal samples. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 3, p. 155–165 (1957)

Shibuya, Masaaki (渋谷政昭): Model intervals for chi-square distributions. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 3, p. 225–236 (1958)

Shiotani, Minoru (塩谷　実): Oder statistics for discrete case with a numerical application to the binomial distribution. *Annals of the Institute of Statistical Mathematics* Vol. 8, no. 2, p. 95–104 (1956)

Shiotani, Minoru (塩谷　実) : Note on the utilization of the generalized student ratio in the analysis of variance of dispersion. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 3, p. 157–171 (1958)

Suzuki, Yukio (鈴木雪夫): On scheduling of overtime work. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 1, p. 37–42 (1957)

Suzuki, Yukio (鈴木雪夫): Discrete decision problems. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 3, p. 113–148 (1958)

Taga, Yasushi (多賀保志) & Suzuki, Tatsuzo (鈴木達三): On the estimation of average length of chains in the communication-pattern. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 3, p. 149–156 (1958)

Takano, Kinsaku (高野金作): Multidimensional central limit criterion in the case of bounded variances. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 2, p. 81–93 (1956)

Takano, Kinsaku (高野金作): Central convergence criterion in the multidimensional case. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 2, p. 95–102 (1956)

Tanaka, Kinsaku (田中金作): On the basic theorems of information theory. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 2, p. 53–77 (1958)

Uematsu, Toshio (植松俊夫): On the traffic control at an intersection controlled by the repeated fixed–cycle traffic lights. *Annals of the Institute of Statistical Mathematics* Vol. 9, no. 2, p. 87–107 (1958)

Uzawa, Hirofumi (宇沢弘文): A generalization of Laplace criterion for decision problems. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 2, p. 123–129 (1956)

Uzawa, Hirofumi (宇沢弘文): On intertemporal efficiency conditions of capital accumulation. *Annals of the Institute of Statistical Mathematics* Vol. 7, no. 3, p. 195–204 (1956)

Yamada, Isumu (山田勇): Changes over time of production and added value —a special problem of index number theory—. *Annals of the Hitotsubashi Academy* Vol. 8, no. 1, p. 13–19 (Oct. 1957)

Yano, Tsuneta (矢野恒太) Memorial Society: Nippon: a charted survey of Japan, 1955. Tokyo, the Society, 1955. xxii, 368; 6p.

PUBLICATIONS RECEIVED

Periodicals

Australia

The Economic Record, Vol. XXXI, No. 69. Melbourne: Melubourne Univ.

Blegium

Annales de Sciences Économiques Appliquées, 16e Année, Nos. 4, 5 Loubain: Institute des Sciences Economiquees Appliquée.

Bulletin d'Information et de Documentation, XXXIIIme Année, Vol. 11, Nos. 5, 6, XXXIVme Année, Vol. 111, Nos. 1, 2. Bruxelles: Banque Nationale de Belgique.

Bulletin de l'Institut de Rescherches Économiques et Sociale, XXIVe Année, Nos. 7, 8, XXVe Année, No. 1. Louvain: Institut de Rescherches Économiques et Sociales de I'Université Catholique de Louvain.

Canada

The Canadian Journal of Economic and Political Science, Vol. 24, No. 4, Vol. 25, No. 1. Toronto: Univ. of Toronto.

Canadian Statistical Review, Vol. XXXIII, Nos. 11, 12, Vol. XXXIV, Nos. 1, 2. Ottawa: Dominion Bureau Univ. of Statistics.

Canadian Statistical Review (Weekly Supplement), Nov. 18 - Dec. 30., 1958, Jan. 6 - March 24. Ottawa: Dominion Bureau Univ. of Statistics.

Ceylon

Central Bank of Ceylon Bulletin, Dec., 1958, Jan.-Feb., 1959. Colombo: Central Bank of Ceylon.

Denmark

National-φkonomisk Tidsskrift, 96 Bd. Haæf te 3-6. Kobenhaven: Nationaløkonomisk Tidsskrift.

Egypt

Economic Bulletin, Vol. XI, Nos. 1-3. Cairo: National Bank of Egypt.

England

Accounting Research, Vol. 9, No. 4. London: Cambridge Univ.

The Bodleian Library Record, Vol. VI. Nos. 1, 2. Oxford: Bodleian Library

Economic Digest, Vol. XI., No. 12, Vol. XII, Nos. 1, 2. London: Economic Research Council.

Economica, Vol. XVIV, Nos. 100, 101. London: The London School of Econmics and Political Science.

Farming in the East Midlands, Nos. 139, 140. London: Univ. of Nottingham.

Farm Management Notes, No. 20. Nottingham: School of Agriculture, Dpt. of Agriculture.

National Institute Economic Review, 1950. No. 1. London: National Institute Economic and Social Resarch.

National Provincial Bank Review, Nos. 44, 45. London: National Provincial Bank.

Reprint Series, Nos. 145-147. Cambridge: Univ. of Cambridge, Dpt. of Applied Economics.

The Sociological Review, Vol. 6, No. 2 Keele Staffordshire: Univ. College of North Staffordshire.

Westminster Bank Review, 1958, Nov., 1959 Feb. London: Westminster Bank Ltd.

France

Bulletin Analytique de Documentation Politique Économique et Sociéte Contemporaine, 13e Année, Nos. 6-8. Paris: Fondation National des Sciences Politiques.

Bulletin d'Information Économique, No. 82. Paris: Banque National pour le Commerce et I'Industrie.

Cahiers de L'Institut de Science Économique Appliquée, 1959 72-75. Paris: Institute de Science Economique Appliquée.

Cahiers Serie G, No. 5. Paris: Institut de Science Économique Appliquée.

Économie Appliquée, Tome XI-1958, No. 4. Paris: Institut dr Science Économique Appliquée.

Études et Conjoncture, 13e Année, No. 12, 14e Année, Nos. 1, 2. Paris: Institut National de la Statistique et des Etude Economiques.

Population, 13e Année, No. 4. Paris: Institut National d'Etudes Demographiques.

Problems Économiques, Nos. 568-583. Paris: Secretariat du Gouvernement, Direction de la Documentation.

Revue de L'Économie, Meridionale, Tome IV, No. 24. Montpellier: Centro Regional de la Productivite & Études Économiques.

Revue Internationale de Droit Comparé, 10e Annee, No. 4 Paris: Societe de Legislation Comparé.

Statistique & Études Financieres, Nos. 119-122, *Suppl. Statistique,* Nos. 116-121. Paris: Ministere des Finances.

Table Mensuelles, 1958 Oct. - Nov. Paris: Secretariat General du Gouvernement, Direction de la Decumentation.

Germany

Mittlungen aus dem Institut für Raumforschung Bonn, Hefte. 40. Bonn: Institute für Raumforschung Bonn, Bad Godesberg.

Raumforshung und Raumordnung, 16 Jahrgang, Hefte. 4. Bed Godesberg: Institute für Raumforschung Bonn.

Schriften des Instituts für Wirtschaftswissen schaften, Nr. 7, 8. Berlin: Instituts für Wirtschaftwsissenschaften bei der Deutschen Akademie.

Weltwirtschaftliches Archiv, Band 81, Hefte, 1, 2. Hamburg: Institus für weltwirstchaft an der Universität Kiel.

Wirtschftswissenschaft, Hefte. 6-8, 1958. Hefte 1. 1959 Berlin: Institut für Wirtschaftwsissenschaften bei der Deutschen Akademie der Wissenschaften.

India

The Eastern Economist, Vol. XXXI, Nos. 19-26, Vol. XXXII, Nos. 1-9. New Delhi: India Council of World Affairs.

Gandhi Marg (*A Quarterly Journal of Gandhian Thought*), Vol. 3, No. 1 Bombay: Gandhi Smarak Nidhi.

Indian Journal of Economics, Vol. XXXVI, No. 152. Allahabad: Univ. of Allahabad, the Dpt. of Economics and Commerce.

Monthly Abstract of Statistics, Vol. II, Nos. 9-12. New Delhi: Central Statistics Organization.

The National Sample Survey, Nos. 9-13. New Delhi: Central Statistical Organization.

Sankhyā (*The Indian Journal of Statistics*), Vol. 20. Nos. 1, 2. Calcutta: Indian Statistical Institute.

Israel

The Israel Exploration Journal, Vol. VIII, No. 3. Jerusalem: The Jewish National and Univ. Library.

Statistical Bulletin of Israel. Vol. IX, Nos. 2-10. Tel-Aviv: Central Bureau of Statistics and Economic Research.

Italy

Aggiornamenti Sociali, Anno IX, Nos. 11, 12. Anno X, No. 1. Milano: Centro Studi Sociali.

Bollettino. Anno XIII, No. 5. Roma: Banco d'Italia, Administrazione Centrale, Servizio Studi Economia.

Economia Internationale, Vol. XII, No. 1. Geneva: Istituto di Economia Internationale.

FAO Monthly Bulletin of Food and Agricultural Statistics, Vol. VII, Nos. 11, 12. Roma: Food and Agricultural Organization of the United Nations.

Italian Economic Servey, 1958 Sep.-Dec. Roma: The Association of Italian Joint Stock Companies.

Rassegna Economica, Anño XIII, Nos. 4-6. Roma: Associazione fra le Societa Italiane per Azioni.

Richerche Economiche, Anño XII, Nos. 3, 4. Venezia: Istituto Universitario Laboratorio di Economia Politica.

Rivista di Economia Agraria, Vol. XIII, Nos. 2, 3. Roma: Istituto Nazional di Economia Agraria.

Sintesi Economica, Anno X, Nos. 9-11. Unione Italiana delle Camere di Commercio Industria e Agricultura.

Statistica, Anno XVIII, Nos. 3, 4. Bologna: Istituto di Statistica delle Univ. di Bologna.

Mexico

Revista de Economia, Vol. XXI, No. 10. Mexico: Institute de Investigaciones Socials. la Universidad Nacional Autonoma.

Revista Mexican d Sociologia, Vol. XX, No. 1. Mexico: Institute de Investigaciones. De la Univercidad National Autonoma.

New Zealand

Monthly Abstract of Statistics, Nov.-Dec., 1958, Jan., Feb., 1959. Wellington: The government Statistics.

Philippines

Philippines Social Science and Humanities Review, Vol. XXII, No. 4. Rizal: Univ. of the Philippines.

Portugal

Rivista de Economia, Vol. XI, Fasciculo 3. Lisbao Eurico Colares Vieira.

South America

Boletin Estadistico, Año. 1 Nos. 9-11. Buenos Aires: Banco Central de la Republica Argentina.

Boletin Estadistica Banco de Guatemala, Ano. XI, Nos, 9-12. Guatimala: Banco de Guatemala.

Boletin Mensual, Nos. 365-367. Santiago: Banco Central de Chile.

Boletin Mensual de Estadistica, Vols. 92-94. Bogota-Colombia: Direccion National de Estadistica.

Crate Semanal de Café, Nos. 11-15, 1958, Nos. 1-6, 1959. Guatemala: Banco de Guatemala.

Informe Economico, Ano VII, No. 1. Guatemala: Banco de Guatemala.

Informe Mensual de Mercados, Año VI. Nos. 8-12. Guatemala: Banco de Guatemala.

Rivista de la Facultad de Ciencias Economicos y de Administracion de Montevideo, Seti. 1958. Montevideo: Facultad de Ciencias Economicas y de Administracion, Universidad de la Republica.

Spain

Boletin de Estudios Economicos, Vol. XII, Nos. 43, 44. Bilbao: Asociacion de Licenciados en Ciencias Economicos Universidad Comercial de Deusto.

Sweden

Sociala Meddelanden, 1958, 5-12, 1959, 1-2.

Uppsala: The University Library

Swess

International Labour Review, Vol. LXXVIII, Nos. 1-6, Vol. LXXIX, Nos. 1, 2. Geneva: International Labour Office.

Kyklos, Vol. XI, Fasc. 2-4, Vol. XII, Fasc. 1. Zürich: Kyklos.

Monatsbericht, 33 Jrg. Nos. 5-12, 34 Jrg. Nos. 1, 2. Zürich: Schweizerishe National Bank.

Thailand

Current Statistics, Oct.-Dec., 1958. Bankok: Bank of Thailand.

U. S. A.

The Accountants Digest, Vol. XXIV, No. 2. Vermont: The Accounting Digest.

The Accounting Review, Vol. XXXIV, No. 1. N. Y.: American Institute of Certified Public Accountants.

The ACLS Newsletter, Vol. IX, Nos. 9-10, Vol. X, No. 1. Verginia: American Council of Learned Societies.

Alabama Business, Vol. 29, Nos. 6,7. Alabama: Univ. of Alabama, Bureau of Bursiness Research.

Alabama Retail Trade, Nov. 15 - Dec. 31, 1958, Jan, 15 - Feb. 28 1959. Alabama: Univ. of Alabama, Bureau of Business Research.

The American Economic Review, Vol. XLXI, No. 1. Los Angeles: The American Economic Association.

The Annals of the American Academy of Political and Social Science, Jan. - March, 1959. Philadelphia: The American Academy of Political and Social Science.

Bulletin of Business Research, Vol. XXXIII, Nos. 11, 12. Vol. XXXIX, No. 1 Ohio: The Ohio State Univ.

Bulletin of the Univ. of Toledo, Vol. XXXVI, No. 4. Toledo: Univ. of Toledo.

Business in Brief, Nos. 23-25. The Chase National Bank of the City.

CDE for Relase, Jan, 13, 1959. New York: Committee for Economics Development.

Civil Liberties, Nos. 166-168, N. Y.: American Civil Liberties Union.

College and University Bulletin, Vol. 11, Nos. 3-8. Washington: National Education Association.

Collegiate News and Views, Vol. XII, Nos. 1, 2. California: South-Western Publishing.

Current Economic Comments, Vol. 21, No. 1. Illinois: Univ. of Commerce and Business Administration.

Direction of International Trade, Vol. IX, Nos. 10-12, Vol. X, Nos. 1-3. N. Y.: Statistical Office of United Nations.

Economic Leaflets, Vol. XVIII, No. 1. Gainesville: Univ. of Florida.

Esseys in International Finance, No. 33, 1959. Princeton: Princeton University.

Farm Science, Vol. 13, Nos. 1, 2. Ames: Iowa State College.

Federal Reserve Bulletin, Dec., 1958, Jan.-March, 1959. Washington: Board of Government of the Federal Reserve System.

Illinois Business Review, Vol. XV, No. 12, Vol. XVI, Nos. 1, 2. Illinois: Univ. of Illinois.

Institute of Industrial Relations, Nos, 100-121. Los Angeles: Univ. of California.

International Finacial News Survey, Vol. XI, Nos. 21-36. Washington: International Monetary Fund.

International Financial Statistics, Vol. XII, Nos. 1-4. Washington: International Monetary Fund.

The Journal of Accountancy, Vol. 106, No. 12, Vol. 107, Nos. 1-3. N. Y.: American Institute of Certified Public Accountants.

The Journal of Air Law and Commerce, Vol. 25, Nos. 3, 4. Illinois: North-Western Univ.

The Journal of Political Economy, Vol. LXVI, No. 6. Illinois: Illinois Univ. of Chicago.

Looking Ahead, Vol. 6, Nos. 8-10, Vol. 7, No. 1. Washington: National Planning Association.

The Macmillan Company Bulletin of New Books, Nos. 1235-1242 N. Y.: The Macmillan Company.

Montana Law Review, Vol. 20, No. 1. Missouli: Montana State Univ.

Monthly Review, Aug.-Dec., 1958, Jan-Feb., 1959. San Francisco: Federal Reserve Bank of San Francisco.

Monthly Review of Credit and Business Conditions, Vol. 40, Nos. 11, 12. Vol. 41, Nos. 1-3. N. Y.: Federal Reserve Bank of New York.

Oregon Business Review, Vol. XVII, Nos. 11, 12. Vol. XVIII, Nos. 1, 2. Oregon: Univ. of Oregon, School of Business Administration.

Pacific Affairs, Vol. XXXI, No. 4. N. Y.: Institute of Pacific Relations.

Pittsburgh Business Review, Vol. XXVIII, 9-12, Vol. XXIX, Nos. 1, 2. Pittsburgh: Pittsburgh Univ., Bureau of Business Research.

Population Bulletin, Vol. XIV, No. 8, Vol. XV, Nos. 1, 2. Washington: Population Reference Bureau.

Research Bulletin, No. 458, Ames: Iowa state College Library.

The Southern Economic Journal, Vol. XXV, No. 3. N. C. The Southern Economic Journal.

Special Report, No. 50. Washington: National Planning Association.

The Trust Bulletin, Vol. XXXVIII, Nos. 5-7. N. Y.: The American Banker's Association.

Univ. of California Publications in Statistics, Vol. 2, No. 14. Los Angeles: Univ. of California.

Univ. of California Publications in Sociology and Socia Institutions, Vol. 3, No. 3. Los Angeles: Univ. of California.

Univ. of Cincinnati Law Review, Vol. 27, No. 4, Vol. 28, No. 1. Ohio: Univ. of Cincinnati.

Univ. of Kansas City Review, Vol. XXV, No. 2. Kansas City: Univ. of Kansas City.

Univ. of the State of New York Bulletin, No. 1454. N. Y.: The New York State Library.

Utah Economic and Business Review, Vol. 19, Nos. 1-3. Utah: Univ. of Utah.

Vanderbilt Law Review, Vol. XI, No. 4, Vol. XII, No. 1. Tennessee: Vanderbilt Univ.

Washington Univ. Law Quarterly, Vol. 1958, No. 4. Vol. 1959. No. 1. Washington: Washington Univ., School of Law.

U. S. S. R.

Vestnik Akademii Nauk, Nos. 10-12, 1958, Nos. 1-3, 1959. Moskwa: Fundamentalnaja Biblioteka.

Vestnik Lenungradskogo Universitela Lerija Ekonomiki, Filosofii i Prava, Nos. 5-17. Moskwa: Fundamentalnaja Biblioteka. Akademii Nauk.

Books and Pamphlets

Jams G. Abegglen. *The Japanese Factory.* Chicago: 1958. Pp.142.

American Civil Liberties Union. *The Past is Prologue.* New York: 1958. Pp. 112.

American University of Beirut, Economic Resarch Institute. *A Selected and Annotated Bibliography of Economic Literature on the Arabic Speaking Countries of the Middle East.* Beirut: 1957. Pp. 91.

Banco Central de Chile. *Trigésima Primera Memoria Anual Presentada a la Superintendencia de Bancos Ano 1957,* Santiago: 1959. Pp. 262.

Banko de Guatemala. *Balaura de Pagos Internacionale de Guatemala,* Guatamala: 1957. Pp. 47.

Banco Centoral de la Argentina. *Memoria Anual 1957.* Buenos Aires: 1958. Pp. 215.

Banco D'Italia. *Assemblea Generale Ordinaria Dei Partecipanti Anno 1957.* Roma: 1958. Pp. 430.

The Committee for Economic Development. *The American Economy 1959.* New York: 1959. Pp. 94.

Donald K. David. *A Plan for Waging the Economic War.* New York: 1958. Pp. 15.

Departmento Administrativo Nacional de Estadistica. *Anuario General de Estadistica 1957.* Colombia: 1958. Pp. 643.

The Same. *Anuario de Comercio Exterior de 1957.* Colombia: 1958. Pp. 687 N. Dhar. *Small-Scale Industries in Delhi.* India: 1958. Pp. 277.

Dominion Bureau of Statistics, Resarch and Development Division *National Income Section, National Accounts Income and Expenditure Third Quarter 1958.* 1958. Pp. 21.

Eduzion Saggio per gli Atenei Italiano. *I Numeri Indici Commercio Estero Italiano.* Italy: 1958. Pp. 60.

Etudes D'Historie Economique. Poltique et Sociale. *Le Libéralism et les Pays Sous-Developpes.* Geneve: 1958. Pp. 352.

Federal Reserve Bank of New York. *Annual Report.* New York: 1958. Pp. 64.

The Government Statistican. *New Zealand Perliminary Results of the Census of Distribution 1958 Retail Trading.* New Zealand; 1958. Pp. 14.

The Same. *Report on the Official Estimates of Balance of Payments for the Year.* New Zealand: 1957–58.

Everett E. Hagen. *Handbook for Industry Studies.* Chicago: 1958. Pp. 89.

Istituto Nazionale per lo Studio Della Congiuntura. *Fluttuazioni Edilizie e Cicli Economici.* Roma: 1958 Pp. 285.

Istituto per la Ricostruzione Industriale. *Annaul Report 1957.* Italy: 1958. Pp. 131.

Istituto di Statistica della Università. *Statistica* Bologna: 1958. Pp. 618.

Sindey Kein. *The Pattern of Land Tenure Reform in East Asia After World War II.* New York: 1958 Pp. 260.

John M. Letiche. *Balance of Payments and Economic Grouth.* New York: 1959. Pp. 368.

The Macmillan Company. *New Books in the Physical Science 1958.* New York: 1958. Pp. 50.

The Same. *New Books in the Social Science 1958.* New York: 1958 Pp. 34.

The Same. *Catalogue of Books in the Social Sciences. 1956-1957.* New York: 1958. Pp. 120.

C. F. Remer. *International Economics of Communist China.* Michigan: 1958. Pp. 221.

A Steatment by the NPA International Commitee. *An Adequade Military Shield for U.S. Foreign Policy special Report* No. 51. Washington: 1958. Pp. 15.

University Library, American University of Beirut. *A Selected and Annolated Bibliography of Economic Literature on the Arabic Speaking Countries of the Middle East 1956 Supplement.* Lebanon: 1957. Pp. 91.

University of Nottingham School of Agriculture. *A Study of Potato Pre-Packing Costs.* London: 1958. Pp. 23.

U. S. Treasury Depertment of International Revenue Service. *Statistices of Income... ...1956 Individual Income Tax Peturns for 1956.* Washington: 1958. Pp. 115.

Ncola A. Ziadh *Sanūsīyah.* Lebanon: 1958. Pp. 148.

The Same. *Sanūsīyah......A Study of a Revevalist Movement in Islam.* Lebanon. 1958. Pp. 147.